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FRACTURES OF THE PELVIS, WITH REPORT OF THREE CASES.

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Without entering into an exhaustive description of the etiology, symptoms, and treatment of fracture of the pelvis, attention is called to a few points in the diagnosis in such cases suggested by the three cases here reported.

The prominence of the crest of the ilium exposes it to frequent injury in falls and from blows, by which, however, most frequently chips of various sizes, according to the direction and force of the blow, are broken off. The diagnosis is here simple: The history of the accident, examination of the crest of the ilium, the whole of which is in most subjects readily traceable, pain on the use of the abdominal muscles or spasm of these muscles sufficing. These fractures are of little interest in that they seldom show much displacement, and are readily managed by simple rest in bed. In case of serious displacement, wiring might be necessary. There would be no difficulty about the insertion of wire sutures, for all parts of the outer edge of the wing of the ilium are readily accessible. Fractures of the other portions of the pelvic bones are apt to be more serious because of injury to other important structures; and accuracy of diagnosis is of very great importance, because, oftentimes, the very life of the patient depends upon proper action being taken, and promptly. The injuries are chiefly of crushing character, as

when a brakeman is caught between the buffers of freight cars, or a miner is pinned between an ore car and the side of the drift. Men who handle heavy freight and work with heavy machinery most frequently receive such injuries. In examining a patient with such an injury, attention should be directed to the bladder, the urethra, the rectum, and peritoneum. Careful watch should be maintained of the secretion of urine, its quantity, its character, whether containing fresh blood, or partially decomposed blood clots (note the shape, color, and size), whether the blood is intimately mixed with the urine, or comes through the catheter before or after the urine, etc., etc. It is a nice differentiation after such injuries to determine whether the blood in the urine comes from the urethra, the bladder, or the kidneys. It is most important to make careful inquiry of how long before the accident the patient urinated, in order to gain some idea of whether the bladder was distended at the time. Since such injuries are apt to paralyze the bladder for a time, the non-voidance of urine does not necessarily imply rupture of the bladder; but in all cases of doubt, a catheter should be passed, first a soft catheter, and, if that fails, a rigid instrument. Much can be learned by palpation with the finger in the rectum when the catheter is being inserted. In this way, for example, it can be determined whether the catheter passed through the prostate or to the right or left of it.

With fractures of the pubic bone or separation of its two portions, the urethra is most likely to suffer. It may be

injured only enough to cause some bleeding, without being cut through so as to permit of urinary infiltration, or it may be entirely severed. Such injuries most frequently occur where the urethra passes through the rigid triangular ligament. Slight injuries of the urethra need little attention, but severe lacerations which permit the urine to escape into the cellular tissues can best be managed by external urethrotomy and perineal drainage. Care should, however, be taken to notice whether the dorsum of the urethra is sound, or at least some portion of it, in order that there may remain a continuity of epithelium between the anterior and posterior portions, to aid in the repair of the tube.

Rupture of the bladder is most frequently extra-peritoneal, but, especially when the bladder is distended at the time of the accident, it may rupture into the peritoneum, in which event it would be followed by more or less severe peritonitis, according as the urine is sterile or infected; but, in any event, rupture of the bladder is an indication for prompt operation. The difficulties in such operation will depend very largely on whether the injury to the bladder is in an accessible portion. Extra-peritoneal laceration will be followed by extravasation of urine, unless prompt drainage is made, preferably by perineal section.

The anatomical diagnosis of fracture of the pelvis is of considerable interest, and can generally be made very accurately. The crests of the ilia may be movable, or pressure on them may cause pain at distant points of fracture. Pressure on the trochanter also. Manipulations of the hip joint will generally determine fractures of the acetabulum, which, however, must be carefully differentiated from fracture of the neck or

head of the femur. Tension of the muscles of the thigh and of the abdomen also assists in localizing by pain.

Examination by the vagina, or by the rectum in man, is of the greatest assistance. The finger can explore accurately the whole of the inner surface of the pubic bone from the horizontal ramus to the ischium. It can further explore the inner surface of the ischium as far back as the spinous process and as high up as the lower border of the rim of the acetabulum. With the finger in the vagina or rectum, movement can be detected at any point in this area when force is applied to a fragment reaching to such point, for example, the crest of the ilium, even though there be no displacement at the point of fracture. The finger will also be able to determine a good deal about the condition of the soft parts, position of tender points, condition of the bladder, whether distended or not, position of the prostate, etc. In the few cases where the head of the femur is driven through the acetabulum, the finger in the rectum will give valuable information.

Case 1. J. C., aged 51, entered County Hospital Jan. 22, 1902, with the history of having been caught by the caving in of a bank in a ditch the day before. After the receipt of the injury, patient tried to stand on his feet. He stated that shortly after the injury he felt a desire to urinate, and had a stinging pain in the urethra, and noticed that a clot of blood was discharged. After that there was no difficulty in urination. He complained of pain in the region of the ascending ramus of the ischium on the left side, sharp in character, and increased on the slightest movement. Status: Large, well-developed man; respirations shallow, 24 to the minute; pulse 96; temperature 99 degrees. Marked

swelling about the inner and upper thigh; grooves above and below the anterior portion of the crest of the ilium obliterated. Severe ecchimoses in perineum, scrotum, and inner side of thigh; some dried blood about the penis and on the clothing; no abrasion from which this might have come. Pressure on the ilium caused pain in the region of the ascending ramus of the ischium; rotation of the left thigh caused pain the same place, rotation inward causing more pain than rotation outward (traction on the biceps). Manipulations of the right thigh caused pain in the left pubic region. No crepitus was made out over the ilium or abnormal mobility. Pressure on the horizontal ramus of the pubic bone caused pain. Passive movements of hips normal; actively, patient could raise both thighs, though with some pain. No shortening present; trochanters equal in relation to Nelaton's line. Finger in the rectum showed a line of fracture at the junction of the descending ramus of the pubic bone with the ramus of the ischium. There was almost no displacement, but crepitus and abnormal mobility were easily made out by the finger in the rectum when the crest of the ilium was moved. A soft catheter entered the bladder with ease. The urethra contained no blood, and the urine was clear. Diagnosis: Fracture of horizontal ramus of pubic bone and descending ramus at the junction with the ramus of the ischium, without displacement, but with slight laceration of the urethra. Patient was kept in bed, with the hips supported by sandbags; but after a few days was taken to a private hospital, and subsequent history has not been learned, but there is no doubt that satisfactory union took place without deformity.

Case 2. W. D., aged 27, entered

county hospital Jan. 14, 1902. He had been thrown down by, and caught beneath a falling box which weighed something over 1,000 pounds. Patient was unconscious for an hour or more, and was taken to the receiving hospital, where a splint was applied. Status: A strong, well-nourished young man, of medium height, dorsal decubitus, legs extended, both feet turned slightly outward, the right thigh abducted, the left thigh adducted. Pressure on the crest of the ilium caused pain in the side. The tension of the fascia lata was slightly diminished on the left side. Patient can flex his thigh 30 degrees, the heel resting on the table, but he could not lift the heel from the table because of pain. Internal rotation of the left thigh was painful, external not (traction of biceps). There was an extensive contusion above and behind the left trochanter, so that its outlines were indistinct; but as nearly as could be determined the arc traversed by the trochanter in rotation was the same on both sides, showing no shortening in the neck of the femur. Patient's chief complaint was pain on taking a deep breath. There was considerable spasm of the lower abdominal muscles. Efforts to move the body about in bed caused pain. No abnormal mobility of the crest of the pubic bone was elicited. Under anesthetic, the anterior portion of the crest of the ilium was found to be freely movable relatively to the posterior portion and the os pubis. The finger in the rectum showed fracture without displacement of the descending ramus of the os pubis about the junction with the ramus of the ischium, near the lower border of the obturator foramen; the lower fragment moved with the crest of the ilium, showing that the bone was intact from the ischium to the crest of

the ilium. The mobility between the anterior and posterior parts of the crest of the ilium determined a fracture at the junction of the posterior and middle third running down into the sciatic notch. Separation of the sacro-iliac joint was excluded by the immobility of the posterior part of the ilium. However, the exact point of fracture was not accurately to be made out because of the great swelling in this region and the spasm of the muscles. Even under anesthetic the anterior portion of the ilium was freely movable only during inspiration, the abdominal muscles fixing it during expiration. Urination was normal. Treatment: Rest in bed, with fixation produced by muslin binder about the pelvis, sand-bags on each side, and Buck's extension with light weight. In this dressing patient was very comfortable. At the end of three weeks the weights were removed. Four weeks after the injury, patient sat up in bed. March 5, patient out of bed. March 10, patient discharged, eight weeks after the receipt of the injury, with firm union and position of the fragments perfect.

Case 3. S. F., aged 30. In October, 1901, while hauling gravel, three tons in one wagon, two tons in a trailer, was thrown in front of the wheels by the giving way of the brake handle. The horses started, and two wheels of each wagon went over his pelvis, the road being hard and smooth. He was attended by Dr. Breneman, of Martinez, and Dr. Reamer, of Danville. They found that the pelvis was badly crushed, with laceration of the urethra, as shown by the discharge of blood from the penis. A soft catheter was clogged with blood, and brought no urine. A silver catheter was tried with the same result. Sterilized water was injected to clear

away the clots, but only partly returned. Hence it was evident that either the urethra was so torn that the catheter did not enter the bladder, or else the bladder was ruptured. The writer was called in consultation, and found patient in following condition: Pulse 120, weak, and thready; respiration weak and shallow; great ecchymosis over entire pelvic region and extending from the umbilicus to the middle of the thighs. The scrotum and perineum were greatly swollen and black, and there were several deep abrasions across the thighs. There was dulness over the lower abdomen, and great tenderness with spasm of the lower abdominal muscles. Both iliac bones were freely movable laterally. The pubis was depressed, but so tender that examination was impossible. The upper abdomen was free of muscular spasm and not tender; there was no distension and no vomiting; evidently, then, no peritonitis. It being nearly 30 hours after the injury, there would, in all probability, have been considerable peritonitis by that time, if the bladder had been ruptured. The bladder could not be made out, however, and, since the patient had passed no water for more than 30 hours, immediate operation was determined upon. Patient took anesthetic well. As soon as muscular spasm was relaxed, and the patient unconscious, the pubic bone was found to be freely movable in all directions. A transverse incision 6 inches long across the upper pubic region showed the pubic bone shattered, with fracture of the horizontal ramus on each side, and a large rent in the aponeurosis at the edge of the rectus muscle on the left side. Through this opening projected a jagged piece of bone, which was entirely separated from its attachments. It was in such a close proximity to the

iliac vein, and was so completely detached, that it seemed best to remove it, although it was 5 cm. long, and comprised pretty much the whole thickness of the horizontal ramus. The rectus muscles were not detached from the pubic bone, but were separated in the middle line sufficiently to explore the pelvis. The whole prevesicle space and the anterior part of the pelvis outside of the peritoneum was filled with clotted and fresh blood. A number of vessels were still bleeding, and required ligation. A number of chips of bone were found free in the cavity; one from the posterior surface was 2 or 3 cm. in diameter. The descending rami, as well as the horizontal, were splintered. A catheter passed through the penis entered this cavity in front of the bladder, and the bladder could be felt above, considerably distended. Perineal section was then made in the middle line; the prostate reached and drawn downward; the urethra was found completely severed flush with the anterior surface of the prostate. A catheter passed through the prostatic urethra brought 16 ounces of urine, slightly tinged with blood. The bulbous urethra was then slit open vertically for a short distance, and its anterior wall sutured to the upper edge of the opening in the prostate by two or three catgut sutures, and a soft catheter inserted into the bladder for permanent drainage. The fractures of the descending rami were plainly exposed in the perineal incision, but were too much splintered to be sutured. On careful examination it was found that the splinters of the two fragments were in contact, save in the left horizontal ramus, and, although the pubic bone was noticeably depressed, it seemed better surgery not to attempt to improve the position of the bone and jeopardize sub-

sequent union by further manipulation and breaking up the fairly firm impaction by attempts at wiring. This was determined on consideration of the very extensive contusion and laceration of the soft parts, the extensive stripping up of the periosteum, the comminution and splintering of the fragments, the rupture of the urethra, and the great danger of sloughing and necrosis from infection, and the fact that the operation was done in a farmhouse, in the middle of the night, under which circumstances the aseptic technic could not be ideal. Accordingly a simple rubber drainage tube was passed through the pelvis from the median line above, alongside of the prostate, and out the perineal incision. Both wounds were closed, except where the tubes passed. Two days later patient was placed on a fracture bed, which enabled the bed pan to be used without disturbing the fragments. Sand-bags gave some lateral support. The course of the wounds was purely aseptic, the urine draining satisfactorily. The highest temperature was 100 degrees on the second day, except after about two weeks, when patient had a sharp chill and transitory rise of temperature, following too hearty a dinner. The drainage tube was withdrawn at the end of the week, and the catheter at the end of 20 days, after which the perineal wound rapidly closed, and the urine was passed in the natural way. A sound was passed daily into the bladder for several weeks, and later once a week. At the end of two months, patient was out of bed, and within a month began walking with crutches. At the end of five months he resumed his work on his farm, and a week later plowed a 20-acre field with gang-plow and four-horse team.

Examination by rectum shows satis-

factory union of both descending rami, slight thickening. X-ray examination shows the pubic bone displaced downward perhaps 2 cm., and a considerable thickening at the points of the fracture, with one or two sharp spiculae, remnants of the splintering. It shows also an interval in the bone over the left obturator foramen. It is of great interest that the patient is able to walk, apparently perfectly well, and to do considerable manual work, notwithstanding the lack of support attendant upon this loss of bone.

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LOBAR PNEUMONIA, FOLLOWED BY PNEUMOCOCCUS INFECTION OF THE RIGHT ANTRUM, LACHRYMAL DUCT, AND A PSEUDO-MEMBRANOUS ANGINA, AND SIX DAYS LATER BY A TYPICAL DIPHTHERIA.

By PHILIP KING BROWN, M. D.

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I am indebted to Dr. Dudley Tait, with whom I saw this case a number of times, for the privilege of reporting it and for supplementary data concerning it.

O. K., a Chinese boy eight years old, was first seen by us on March 13, 1902, presenting the following history: He had been well until Saturday, March 8, when he was seized suddenly with a violent chill, followed by a fever and slowly-progressing cough, with some dyspnea. A doctor was summoned six days later, only because the child seemed to be getting more uncomfortable and weaker. Examination revealed an ordinary lobar pneumonia of the left lower lobe, a weak, rapidly-acting, dilated heart, and considerable distress with breathing. Temperature 104.5 degrees, respiration 40 to 50, pulse 130 to 150. Stimulation revived the child,

and on the following day a crisis occurred. The next night, however, the temperature rose to 104.6 degrees, and, although normal the morning following, was again very high at night. The child had been thoroughly overhauled in the meantime for evidences of the commoner complications, which were wanting. As the nose had been discharging, the sinuses were investigated briefly for evidences of trouble and nothing definite discovered. On the following day a tenderness over the right malar bone, followed rapidly by a swelling and a free discharge from the right nostril, indicated plainly the seat of the trouble. Drainage was apparently so free that no operative measures were used in treatment. A slight conjunctivitis and discharge from the right lachrymal duct followed, and with the free drainage the temperature fell in two days to normal, with a rise of nearly a degree in the evening. On the first, a febrile day, painful deglutition began, and a white membrane was discovered on one tonsil, spreading to the other in 24 hours. Prompt examination of the membrane by blood-serum culture and coverslip showed an almost pure growth of Frankel's pneumococcus. Diphtheria bacilli were looked for with special care and not found. The nose and eye discharges were also examined by culture and coverslip preparation, and the same organism found in immense numbers. The patient continued comfortable, improving in every way until the night of the sixth day following this, when the temperature began to rise and the pulse to increase. At 8:00 P. M. the record was: Pulse 98, respiration 25, temperature 100 degrees; at midnight, pulse 108, temperature 103; at 7 A. M., pulse 126, respiration 26, temperature 103 degrees, and despite stimulation the child seemed very weak. Dr. Tait saw the patient early in the morning and

recognized in the laryngeal stenosis, which had occurred over night, a probable extension of the membrane. The child was failing and tracheotomy was done at once, and 3,000 units of diphtheria anti-toxin were given. Out of the tracheal opening several large pieces of membrane were removed before the tube could be inserted. These I examined by culture and coverslip. The smears showed immense numbers of diphtheria bacilli and pneumococci, and the cultures after ten hours showed a predominance of Klebs-Loeffler bacilli with pneumococci and a few staphylococci. The temperature fell after the anti-toxin and the child was breathing quietly an hour later when I saw him. The membrane in the throat was still white and had spread up to the base of the uvula on both sides and partly down the uvula and slightly along the anterior pillar on the right. We decided to take this anterior patch as a guide, and to give 3,000 units of anti-toxin every three hours until some effect on this was noted. The condition of the child remained unchanged till evening, when in an attack of vomiting the tube was obstructed, and the child died before help could be obtained. An autopsy was not allowed.

Of the antrum complication there is little to say, except that the bacteriology of acute antrum infections has been singularly neglected, and but few studies of the condition were found. Among them I have not found mention of either primary or secondary pneumococcus infection here. V. Ammon, in the *Munch. Med. Woch*, Jan. 2, 1900, in speaking of ophthalmia, mentions the fact that careful bacterial investigation showed almost half of his cases to be caused by other organisms than the gonococcus, and of this number the pneumococcus was responsible for twice as many as the staphylococcus, pneumo-

bacillus, and pseudogonococcus, which made up most of the lesser infections. There was no ophthalmia in this case, but that was doubtless due to the constant cleansing of the eye, for pus oozed out of the lachrymal duct continuously, and a severe conjunctivitis followed the infection of the duct.

Pseudo-membranous anginas of other than diphtheritic origin are not uncommon accompaniments or sequels of infectious diseases, especially in children, and they have been reported as primary often enough to be of interest. The Friedlander pneumobacillus infections of the throat, primary and secondary, are reviewed by Meyer in a recent number of the *New York Medical Journal*, but little mention is made in literature of those due to the Frankel pneumococcus, except in an occasional bacteriological report of throat examinations in contagion hospitals, where mere mention is made of the pneumococcus as the chief or only organism of pathological interest, and these reports do not contain much of their pathologic relation to the cases. The infections due to the pneumobacillus are universally reported as being peculiarly resistant to treatment, and, as a rule, occur with but little constitutional disturbance. That was apparently true of this case of pneumococcus infection. The membrane on the tonsils was but slightly influenced by applications of any sort, but did not spread after the first day, until the subsequent diphtheritic infection. The diphtheritic process is interesting chiefly because of its tardy onset and the relatively greater frequency with which pneumococcus pneumonias complicate diphtheria than does diphtheria complicate pneumonia. Experimentally, upon small animals, Mya has found that the double infection with the Klebs-Loeffler and Frankel organ-

isms is far more rapidly and surely fatal than either alone. The fatal accident in this case is particularly to be regretted, because the condition of the child improved somewhat after each successive dose of the antitoxin.

THE ETIOLOGY AND DIAGNOSIS OF APPENDICITIS.

By ALFRED EICHLER, M. D., San Francisco.

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The causes of appendicitis are manifold; our ideas in this regard have been subject to some changes within the past decade, due to the preponderance of bacteriological investigations. Among mechanical causes those affecting the lumen of the appendix are most important. Some of the European authors maintain that a large lumen is more apt to cause appendicitis, owing to the easy entrance of infected matter; American writers seem to think that a stricture or obstruction at the appendical orifice is one of the causes of appendicitis. Twisting of the appendix, adhesions to neighboring organs, intestines, ovaries, bladder, and uterus, edema of the appendix, due to pressure from intestinal contents or otherwise, are also common causes of appendicitis. The small caliber of the appendical lumen compared with the thickness of its walls also deserves consideration. Obliteration or embolism of the appendical artery, and inflamed mesentery or gland pressing on the artery—in fact, anything which may lead to necrosis of tissue, can, in view of the abundant bacteriological flora of the intestinal canal, cause appendicitis. Muscular relaxation of the cecum, due to constipation, favoring a retention of the bowel contents, may prove itself an important etiological factor. Constipa-

tion *per se* may not be exactly an aid in causation, except by the chemical changes taking place in long-retained bowel contents. Dietetic excesses, especially the ingestion of substances which easily ferment and generate a great deal of gas, may cause an appendicitis, by forcing some of the bowel contents into an impaired appendix or by supplying a stimulus to the pathological activity of the colon bacillus. This bacillus is always present within the intestinal tract. Intestinal contents and the mucus secreted are the best soil for its growth. Other germs are also present, such as the various streptococci, staphylococci, and bacillus pyocyaneus. Mixed infection is therefore easy, and the exact role which the colon bacillus plays in it is hard to determine. Some ascribe to it even the power of traversing healthy mucous membranes. No doubt it does outnumber all other bacilli by its rapid development in this suitable soil, and the readiness with which it appears to cause wide infections and abscesses entitle it to greater consideration. This change from the harmless intestinal bacillus to such a dangerous foe is quite astonishing, and must be partly accounted for by the presence of other pathogenic organisms, and the thought that the exact form of low life which causes this change has not been discovered may not go amiss. Foreign bodies and fecal concretions were some years ago thought the only cause of appendicitis. Their importance has been greatly overestimated; recently I saw an appendix containing a hard fecal concretion the size of a lima bean. This appendix was part of the incarcerated intestine lying in an old, irreducible hernia, which had become strangulated. Strange to say, the appendix was the healthiest looking part of the bowel. Fecal concretions are rather soft in fresh cases. In older ones

they may be hard. Seeds, cherry stones, and other kernels, fish bones, needles, and similar things, form the balance of the foreign bodies. Intestinal worms are also mentioned as causes of appendicitis, and I know of a case where a man discharged pieces of a tapeworm from an appendical abscess, which, lucky for him, had opened spontaneously through the loin. About one year previous I had advised the man to submit to an operation for appendicitis.

The diagnosis of appendicitis is easy in the presence of decisive symptoms. Pain in the right iliac region, abdominal distension or tumor, rigidity of the rectus, fever, however light, and, at the onset, gastro-intestinal symptoms, such as nausea or vomiting and constipation. If the symptomatology is obscure, we deal with a different problem, a very difficult one at times, for the solution of which we may have to resort to general anesthesia or explorative incision. Special stress should be laid upon the history of the case, regarding the onset of the disease, slow or rapid, and its periodicity. Time and frequency of observation are main factors in establishing a diagnosis. Regarding the history and semeiology, it is important to keep in mind the common varieties of appendicitis, catarrhal, only slight pains, constipation followed by diarrhea; repetition of attacks may be frequent. Sometimes these are thought to be simply bilious spells; in women they are called hysterical or nervous; they also resemble colic.

Symptoms: Those of a light enteritis, with diffuse pain in right side, perhaps over the entire lower abdomen. Urine shows nothing abnormal. Fever slight; pulse a trifle fast. The appendix can often be palpated.

A severer form sets in with vomiting, diffuse or localized abdominal tenderness,

and distension, and there appears to be some swelling in the right iliac regions. Bowels mostly constipated, at least irregular. Urine scanty and of a high color; at times gives diazo reaction. Rectal examination negative. Temperature elevated; pulse rather fast. The pain is diffuse and rectus very rigid. Cases of this kind may be classed as severe, and, while they subside in a few days, they are certain to return, and form the best material for interval operation. Cases with a sudden onset, immediate severe pain, and rapid abdominal distension are the most formidable. The temperature is elevated to about 101° Fahr.; pulse fast; the pain localizes itself within a few hours; micturition becomes painful; shooting pains toward the thigh are noted, and often hiccough follows the original vomiting or nausea. Bowels are constipated, urine very high color. Tongue becomes furred and coated quickly. A tumor can soon be felt in the right iliac region and be palpated from vagina or rectum. At this stage the respiration becomes shallow, and the face assumes the characteristic anxious expression. The temperature hardly ever rises, but the pulse becomes smaller and faster. Differential diagnosis is helped greatly by keeping the three types in mind. The severest form resembles acute intestinal obstruction; but here the onset is more gradual; there is also rectal tenesmus, and fecal vomit sets in early.

The second type is the one which causes the most trouble to diagnosticians. Extra-uterine pregnancy, renal colic, perinephritis and perinephritic abscess, gastritis, enteritis, oophoritis, and ovarian injuries, as well as new formations, typhoid fever, tubercular peritonitis, severe colic, and even hip-joint disease, are mentioned in regard to differential diagnosis, and, what is worse, they sometimes

coexist with appendicitis. Time will always be needed to make the diagnosis. The exact history, palpation of the appendix, the pressure of a tumor, also if palpable through rectum or vagina, the presence or absence of fever, the McBurney point, especially when located by the patient himself, the rigid rectus, and the previous attacks of mild or severe forms, will be sufficient to decide the question. The very mild type offers serious obstacles to the diagnostician in regard to differentiation from lumbar neuralgia, gastralgia, or chronic gastritis with acute exacerbations; valuable time may be lost. In this group belongs also the appendicitis larvata of Ewald and Sonnenburg, a form of masked appendicitis, where long-standing appendical disease is observed by long-standing gastric or other abdominal disease, and where removal of the appendix causes complete restoration to health, showing the reflex possibilities of a diseased appendix. Here we must principally rely on the history and on the periodicity of the attack, as well as the closest observation.

To resume, I would state the most important points in diagnosis of appendicitis to be: (1) The history and clinical picture, with close observation; (2) thorough abdominal palpation, including the appendix; (3) examination through vagina and rectum in cases where a tumor is present; (4) in doubtful cases, especially where a tumor is present, general anesthesia to determine the location of the tumor and its relation to the surrounding parts; (5) exploratory incision.

ON THE TREATMENT OF TALIPES EQUINO-VARUS CONGENITUS.

By JAMES T. WATKINS, M. D.

Mr. President and Gentlemen: Permit me first to thank you for the invitation to

address you to-day, for your thoughtfulness in permitting me to choose my subject, and for the opportunity to enlarge my own professional outlook by exchanging ideas with you and with our distinguished colleagues from the east.

After deliberation it has seemed to me that I should not make a mistake in describing to you those methods of treating talipes equino-varus congenitus which are efficient, and still within the reach of the general practitioner, and in speaking briefly of the orthopedic methods which have given me the best results. For clinical purposes clubfeet of this type may be subdivided into three classes: The clubfeet of little children who have not begun to walk; the clubfeet of children who have learned to walk, but in whom ossification of the tarsal bones is not complete; the clubfeet of older persons.

In the first class of cases we may reasonably expect a perfect functional and anatomical result to follow judicious and sufficient treatment. Here we have to deal with what has been called a *twisted* foot. The soft tarsal cartilages present no significant changes, the muscles are undeveloped, and the soft parts on the inner and plantar aspects of the foot, the shortened tendons and ligaments, can be stretched with comparative ease. The orthopedic problem is to untwist the foot and to maintain it in overcorrection till the contracted tissues have lost all trace of their elastic recoil, and till the overstretched structures on the convexity have taken up their slack and acquired a normal elastic tone. At the same time the tarsal cartilages, through the influence of growth and of functional use in the correct position, will have assumed their proper mutual relations.

The second group of cases presents a more serious problem, nor may we expect as favorable a result. The late Julius Wolff, of Berlin, demonstrated that deformity is the result of the functional

use of a member subjected to improper static conditions. It is not the *cause* of improper function; it is its effect—the result of nature's attempt to make the greatest possible use of the member under unfavorable conditions. Consequently, the moment children begin to walk, another and very serious deforming factor is introduced. It is that quality or characteristic of bone by virtue of which any change in the conditions of tension and pressure present is followed by a change in the external and internal architecture of the bone itself. Therefore the use of a foot with the weight improperly applied to it is as harmful functionally as its use under the influence of the normal statics is beneficial. The influence of function upon deformity is interesting, because, as will be shown later, by reversing the process which caused deformity, we effect a cure. However, the orthopedic problem in the second class differs from that in the first, not so much in kind as in degree. The deformity must be over-corrected, and the bones, which are still more or less cartilaginous, maintained in their proper mutual relations, during functional use of the limb, till abnormal conditions have given place to normal. Though the functional result in these cases may be excellent, more or less atrophy will persist.

On the third class of cases, the clubfeet of adolescents and of adults, the deforming forces have been so long at work that a simple remodeling may not be sufficient to correct the deformity. In a certain number of these cases some form of bone plastic operation may be necessary to supplement the attempt at wrenching the now completely-ossified bones into their normal positions. All the steps of the correction are more difficult and the after treatment longer than in the preceding classes. In the third class a perfect functional result need not be expected, though the external configura-

tion of the foot may apparently become normal.

When a child is born with clubfeet, the attendant physician is met with the question whether treatment should begin at once or be deferred till a later time. The preponderance of expert opinion is in favor of beginning the treatment at once. During the first two or three weeks corrective manipulations, which are so simple that they can be taught to the mother or nurse, should be performed three or more times daily. The ankle and heel are fixed by the hand of the opposite side (left foot, right hand), while the anterior foot is grasped by the other hand and twisted outward in over-correction. It is held there for a moment and then released. This manipulation is repeated several times. In order to maintain the foot in the corrected position, a flannel bandage is passed twice or thrice from the inner border across the sole and dorsum of the foot, and then up the outer side of the leg, to which it is bound by circular turns of a second bandage applied from above downward. As they descend, these circular turns increase the pull that is made on the foot by the first bandage. The latter is fixed by a pin at the upper end. It should be reapplied at least three times daily.

After two or three weeks of this manipulation, more aggressive measures may be undertaken. The same method of correction is employed, but the foot is now twisted outward in abduction, pronation, and dorsal flexion, the twists being made rhythmically and with increasing vigor. In this way the soft parts are stretched on the inner border and sole of the foot. The amount of force employed, however, should not be so excessive as to cause pain. In order to secure whatever correction has been obtained, the following dressing is applied, its technic having been independently evolved by both Whitman and Sherman:

A narrow strip of adhesive plaster is carried down the outer side of the leg from above the knee to below the heel. Pledgets of cotton are introduced between the toes, and a strip of cotton carried about the leg below the tibial tuberosity. The outer side of the ankle where the skin wrinkles up in overcorrection is smeared with vaselin. The foot is held in the corrected position and a layer of cotton batting, or preferably a flannel bandage, is applied from the tibial tuberosity to the toes. If the foot can not be maintained in correction without assistance, the mother or nurse may hold it while a plaster-of-Paris bandage is applied smoothly and without pulling. The long ends of the adhesive strip are turned down from above and up from below, to be incorporated in the plaster, thereby anchoring it. Half an ordinary plaster bandage, five centimeters wide and as many meters long, will usually suffice for each foot. The plaster is well rubbed in, and the corrected attitude maintained until it has set. This dressing is changed once a week, the foot each time being brought into better position.

When the varus has been transformed into valgus, which ought not, as a rule, to require more than a month or six weeks, the equinus deformity should be corrected. In order to avoid excessive dorsal flexion at the anterior and mid-tarsal joints, the foot should be pressed upward by means of a flat piece of wood applied to the entire sole. Occasionally the calf muscles will stretch sufficiently so that a few repetitions of the treatment will cause the heel to descend. Oftener it is necessary to cut the tendo Achillis to obtain this result.

There is a difference of opinion whether Achillotomy should precede or follow the other steps in the correction of clubfeet. My own feeling is that we should be governed by the nature of the case. If the varus is the principal de-

formity, I believe the division of the Achilles tendon should be the last step, for it offers a fixed point against which to work in correcting the deformity of the anterior foot. In such a case it may not prove necessary to cut it at all. But where the equinus is the most marked feature, early division of the Achilles tendon is indicated. It assures the descent of the heel and precludes the possibility of overcorrection of the anterior foot.

The safest method of performing Achillotomy is the following: Place the anesthetized patient face downward on the table. When the field of operation has been rendered surgically clean, the operator grasps the foot with the hand of the opposite side and extends it on the ankle. This is done to relax the soft parts behind the ankle-joint. The point of a very sharp tentome is introduced beneath the skin a little to the outer side of the tendon. It is held with the flat of the blade parallel to the long axis of the leg. The blade is carried subcutaneously inward and backward till it lies directly over the tendo Achillis about an inch and a half above its insertion. The foot is then dorsally flexed at the ankle to make the tendon tense, and the blade of the tenotome turned through ninety degrees, so that its cutting edge is applied to the outer surface of the tendon. The forefinger of the hand which holds the foot in dorsal flexion is now applied to the skin above the back of the knife, and the latter pushed through the tendon by direct pressure, and without sawing movements. The instant the tendon is divided, something is felt to give way beneath the controlling finger, and a distinct cupping of the skin may be seen and felt at the site of the division. The tenotome is again turned on its side and carefully withdrawn. An aseptic compress and gauze bandage are temporarily applied, while the surgeon proceeds with the

other steps of the operation. Treated by this method, the clubfeet of children who have not learned to walk ought, within three months, to have assumed the normal shape and position. Thereafter some form of retentive apparatus must be worn till the child has learned to walk properly.

The simplest form of retentive apparatus is the Thomas splint. It comprises a sole plate and a calf piece of soft iron united by a flexible iron rod. The anterior part of the inner border of the foot plate is turned up at a right angle to it. The splint is lined throughout with boiler felt. In adjusting the splint, a piece of adhesive plaster is applied about the inner border and sole of the foot, and the end held by an assistant, who pulls the foot, by means of it, into the corrected position. One of its advantages is that any blacksmith can make this splint in half an hour. Instead of the Thomas splint one may employ the Sherman night shoe, which is as simple as it is efficient. It consists of a steel foot-piece and external upright, jointed in the axis of the ankle-joint. A catch prevents extension of the foot on the ankle beyond a right angle. The calf band at the upper end of the upright grasps the leg just below the tuberosity of the tibia. The posterior half of the inner border of the foot-plate is turned up at right angles to the plate as high as the level of the ankle-joint. The foot is held in pronation at the ankle by a buckskin thong, which passes from the base of the inner border from before backward about the foot, and then out through an oblique slot in the anterior part of the perpendicular portion. The thong then passes behind the heel to a hook on the external upright. A second thong passes from without inward across the forefoot, and, binding it down, emerges on the sole through a slot in the inner side of the plate. It is made fast

to the same hook in the external upright.

Turning next to the treatment of clubfeet in children and older persons, a method which is at once efficient and within the reach of the general practitioner is the so-called "step-by-step" method of the late Julius Wolff, of Berlin. The principle of the treatment lies in gradually restoring the proper static conditions in the foot and in encouraging the patient to walk on the foot while it is maintained in the corrected position, so that, through their inherent transforming power, the bones may be influenced to assume their normal shapes and proper mutual relations. A subcutaneous tenotomy of the Achilles tendon, and occasionally of the tibialis posticus and flexor communis digitorum tendons, is performed; two or three days later the patient is anesthetized and the foot vigorously corrected by the surgeon's hands. A plaster-of-Paris dressing is then applied, and the foot further corrected while the plaster is hardening. Three or four days later a wedge is cut from the outer side of the plaster below the ankle, and continued about the latter by a circular cut through the plaster. The foot is further corrected till the gap in the outer side of the dressing has closed. The compensatory gap at the inner side of the dressing is filled in with one end of plaster bandage, which is then carried about the foot to retain all the improvement gained. Three days later another wedge is removed from the outer side of the bandage and the position of the foot again corrected. These "steps" are repeated again and again, till, in from one to three weeks, the patient can stand with his sole at right angles to his leg. An anesthetic is employed only for the first dressing. Care is taken to avoid pressure sores by cutting out the bandage over the inner aspect of the great toe and the outer side of the ankle. Wherever a patient complains of persistent pain, a

hole is cut in the bandage. When the foot is once plantigrade, a fresh plaster dressing is applied, and over it a stocking and laced shoe. In this dressing the patient is encouraged to walk about as much as possible during a period of from three months to a year. The bandage may be renewed when necessary.

This method is slow, but it is safe and efficient, and is within the reach of the general practitioner.

Rapid correction of the deformity takes the treatment of clubfoot from the sphere of activity of the family doctor to that of the orthopedic specialist. The most satisfactory redressing apparatus is the surgeon's hand, and the attempt should be made to redress the deformity manually. There is usually present some torsion of the leg on its longitudinal axis, which is associated with displacement forward of the lower end of the fibula. Should this twist be disregarded and the deformity alone corrected, the patient would present feet turned inward (pigeon-toes) at the end of the treatment. To correct this deformity, the limb is grasped at the knee and at the ankle and the lower end twisted vigorously outward, just as a towel is wrung out. To correct the adduction of the clubfoot, the hand of the opposite side (right foot, left hand) grasps the heel so that the base of the thumb is placed over the outer side of the calcaneo-cuboidal articulation, while the hand of the same side grasps the anterior foot and bends it outward over the fulcrum formed by the thumb and palm of the hand. This step is repeated till the adduction is transformed into abduction.

A simple but extremely useful contrivance, especially with the clubfeet of older children, is the small, leather-covered, wooden wedge first recommended by König, of Berlin. The foot is protected by a wet towel and the patient turned on his side, so that the apex of the dorsal

convexity of the foot may be placed upon the wedge. An assistant now steadies the leg, while the operator grasps the anterior foot with one hand and the heel and ankle with the other, and throws his weight upon them, crowding the apex of the convexity down upon the wedge. In this way the most resistant forms of abduction and of plantar flexion are corrected, the bones being pushed in and the ligaments snapped, often with a distinct report.

To correct the plantar flexion still further, the one hand grasps the leg just above the ankle-joint, while the other is applied to the sole, and forces the foot upward and outward in dorsal flexion, and at the same time vigorously everts the sole. This act is repeated again and again with increasing vigor as the soft parts yield in response to it. The correction of plantar flexion will be facilitated by a cloth tractor, which is carried across the dorsum of the foot and dragged downward with one hand, while the other crowds the anterior foot upward and outward. Half a dozen turns of an Esmarch bandage applied across the sole and behind the leg may prove of great assistance in correcting both the plantar flexion and the equinus.

Achillotomy may precede or follow these manipulations. After division of the tendon the patient is placed face downward and the knee flexed at a right angle, to enable the operator to hook his fingers over the upper edge of the calcaneus and drag it down, while the palm, applied to the sole of the foot, crowds it upward in dorsal flexion.

At the Children's Hospital we occasionally replace the hand by the Thomas wrench. This is originally a monkey-wrench, whose jaws have been substituted by two strong, rubber-covered pins. To evert the foot, the wrench should be applied from the inner side, and should grasp the foot tightly enough to prevent

all danger of slipping. The upper pin is applied against the astragalus, and the foot rotated forcibly outward. The other hand makes counter pressure against the lower end of the fibula. The same hold suffices for the equinus. To stretch the soft parts at the inner side of the foot in adduction deformity, the upper pin should be placed against the cuboid and the lower one behind the first metatarso-phalangeal articulation. The stretching should be carried to the point where the foot is temporarily paralyzed. It should be done quickly, forcibly, and the foot instantly released. If the foot be not at once released, an annoying pressure sore will result. The risk of this accident is diminished by wrapping a wet towel about the foot before applying the wrench.

When once the foot is flaccid and the correction complete, it should be covered with a double layer of wadding and put in plaster of Paris in overcorrection—that is, pronated, abducted, dorsally flexed beyond a right angle, and in full plantar extension.

Where there has been considerable traumatism, it is well to carry two parallel incisions two centimeters apart down the front of the plaster dressing from a finger's breadth below the tuberosity of the tibia to the same distance above the roots of the toes. The plaster between the incisions is removed and some of the cotton wadding drawn into the space thus left. This is done to prevent the formation of pressure sores during the reactionary swelling. In trimming the bandage, a tread surface is left beneath the toes to prevent the formation of contractures. On the third or fourth day the patient may get up and walk about in the bandage. Thereafter the bandage should be renewed once a month for three months.

Subsequent treatment varies with the different cases. It may be sufficient to

supply the patient with a shoe having a straight inner border and a sole raised on the outer side.

Again, some form of retentive apparatus may be necessary to hold the foot in correction to guide it during functional use.

A clubfoot shoe, to be efficient, should possess certain leverages acting on the affected foot in the sense of correction. The inner side of the anterior foot should be thrust downward and outward, while its external part should be forced upward. The posterior part of the inner side of the heel should be forced downward and outward, and the outer aspect of the root of the foot should receive a thrust inward. The inward thrust ought to be applied behind the cuboid, however, and not against it. The principal distortion occurs at the calcaneo-cuboidal articulation; consequently, pressure on the cuboid, even after correction, must tend to cause a relapse of the deformity.

These requirements are fulfilled by the Taylor brace. This brace, which is worn inside the patient's shoe, consists of a sole-plate with a perpendicular inner border and an internal upright, which extends as high as the inner side of the knee and terminates in a calf band. A hinge which permits dorsal flexion, but prevents extension beyond a right angle, unites the foot-plate and the upright. The foot-plate is the exact size of the sole and extends as far forward as the balls of the toes. The perpendicular inner border rises as high as the dorsum of the foot. By crowding the anterior foot against the inner border, and at the same time carrying straps tightly across its dorsum, a thrust downward and inward is imparted to the antero-internal portion, while a piece of adhesive plaster applied to the inner side of the calf and provided with webbing will draw the heel down to the foot-plate, whose inner border will thrust the heel outward. The

inward thrust is imparted to the outer side of the root of foot by straps of webbing, which cross the dorsum, and, when unopposed, crowd it inward and downward. A strong leverage in the sense of eversion and abduction may be exerted on the foot by bending the foot-plate and upright outward.

While I am not an advocate of the correction of clubfoot by tenotomy and syndestotomy, cases do occur in which the division of one or more tendons or ligaments seems indicated. In doing a tenotomy to correct a deformity, the least important of the structures which oppose correction should be divided first, and so on, till correction is possible. Division of the tendo Achillis has been described. The plantar fascia should be divided at a point one-third of the distance from the heel to the toe, before it begins to expand.

The tibialis posticus tendon is best approached close to the inner margin of the tibia, two inches above the internal malleolus. At this point it is farther from the posterior tibial artery, as well as the saphenous vein and nerve, than at any point nearer the foot. The tibialis anticus should be divided three-fourths of an inch from its insertion into the internal cuneiform bone. The tenotome should be introduced from the outer side of the tendon to avoid wounding the dorsalis pedis artery, which lies to its outer side and is separated from it by the tendon to the extensor of the great toe.

The cuboid may be bound down by the inferior calcaneo-cuboidal ligament, which is divided by introducing a knife into the calcaneo-cuboidal articulation and cutting downward. The joint will easily be found a few millimeters in front of a line dropped from the external malleolus.

The least radical of the operations by "open incision" is that of Phelps. It is an open incision extending from in front

of the internal malleolus one-fourth of the way across the sole of the foot and down to the inner side of the neck of the astragalus. Practically all the soft parts are divided, and the foot is then brought into supercorrection by means of the Phelps osteoclast. It is dressed without drainage and fixed in plaster of Paris. The wound heals by granulation in about three months. The operation is applicable to the more resistant club-feet of adolescents and adults. But the correction of the deformity is confined to one part of the foot, while the other portions maintain their abnormal relations. An imperfect functional result may therefore be expected. Recurrence in the older cases is rare, but children require careful after treatment.

Astragalectomy is an operation which finds favor with a good many surgeons. The bone is exposed through an incision extending from the end of the external malleolus to the base of the middle metatarsal bone. The attachments of the bone at its circumference are severed with the knife. It is then raised with the bone forceps so that the subastragaloid ligament and other tissues may be divided with the curved scissors. The bone is removed and the wound closed with interrupted sutures. The tendo Achillis is divided, as well as any structures which may still oppose correction. A posterior right-angled splint is applied. In a month the wound is healed and a talipes walking shoe prescribed. The functional result which follows this operation is fairly good. The limb is shortened by the height of the astragalus, and recurrence of the deformity is not infrequent.

Eleven different forms of tarsectomy have been described, none of them generally satisfactory. Occasionally, with or without removal of the astragalus, a wedge of bone with its base directed outward is removed. It may include the

anterior portion of the os calcis, the astragalus, the cuboid, and the scaphoid. Such an operation should be attempted only when all other methods have failed. The functional result will be very imperfect, the foot simulating an ankylosed flat foot.

Such is the merest outline of the modern treatment of talipes equino-varus congenitus. Its object is to get the foot at right angles to the leg as early and as quickly as possible, and to maintain it in that attitude till the tissues which encourage deformity have stretched, till their overstretched opponents have acquired tone and function, and till the bones present a normal structure and relations. Lastly, the object of treatment is to control the foot while it is learning to walk correctly.

In infants the preferable treatment is that of gradual correction and subsequent retention in the corrected position, either by means of plaster of Paris or an efficient brace. The clubfeet of children who have learned to walk are best treated by manual correction in one or, in most, two operations. Those cases of this class which resist simple manual correction can usually be corrected by means of the Konig wedge or Thomas wrench. Care must be exercised, however, in using these instruments. The "step-by-step" method of correcting clubfoot is protracted, but gives a satisfactory result in the majority of the cases.

In the more resistant cases subcutaneous section of the parts which oppose correction should be attempted, beginning with the least important structures. The operation must be combined with manual correction. Still more aggravated cases call for division of all the contracted tissues through Phelps' open incision, combined with mechanical over-correction. In such a case the correction is only partial and the final result functionally imperfect.

Occasionally the deformity may be so great as to justify removal of the astragalus. And when all other methods have failed, but not till then, is the surgeon justified in performing a cuneiform tarsectomy.

Speaking generally, it is by the selection of that method which best meets the requirements of the individual case that the scientific practitioner of to-day is distinguished from the one-method empiricist of the past. And just in proportion as we seek the truth humbly, recognizing that we do not know, nor caring when our dearest preconceptions are proved false, shall it be permitted us to say to our lame brother, in the words of the Divine Orthopedist, "Take up thy bed, and walk."

THE TREATMENT OF SPINAL TUBERCULOSIS.

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The surgical treatment of vertebral tuberculosis can practically be summed up in a single word—rest. Rest to the diseased bone, rest from motion, and especially rest from the weight-carrying function; the former, movement rest, can not really be obtained; but the latter, perfect and entire rest from the weight-carrying function, is usually within our power, and is the most important step in the treatment, and in attaining which immobilization is also practically secured. Other things being equal, repair of the tuberculous bone lesions is in proportion to the rest secured to the diseased structures, and conversely erosion and destruction of bone are to a large extent dependent upon the work and pressure upon the diseased areas,

and the kyphos is the measure of that destruction; hence it follows that the chief object in treatment is to limit or prevent this weight-carrying function from be-



ing performed by the bodies of the tuberculous vertebrae. The strict question, then, is not what treatment shall be adopted, but how best can rest be obtained in a particular case, and with the lesion in an especial location.

With disease of the spinal column at any level, the recumbent posture offers a ready means of securing rest to the supporting function of the bone, and, as we are better able to fix the child in the recumbent position than any other, so we can also more nearly attain the immobilization, if desired. Except then for the possible disadvantage of the confinement, and thereby perhaps losing somewhat in the general condition, and lessening the resistance of the patient (and this is problematical), the supine position offers the very best, the easiest, and the safest method of giving the necessary rest to the diseased and weakened column.

In the early stages of the disease, in practically all cases while the tubercu-

lous infection is active, the recumbent posture in its best form has definite advantages that can not be counterbalanced by any possible risk to the general condition from confinement; the child, unconsciously realizing the bone sense of structural weakness, soon recognizes its safety, and, feeling the protection and strength of its position, it clings to the stretcher and strenuously objects to any lifting or moving not absolutely necessary for cleanliness, etc., until the acute stage is passed. During this period my spinal children live on the curved stretcher, which I had the honor to present to your society some three years ago. The specimen stretcher shown has been used by a child for the last seven months, up to less than three weeks ago, when the boy was fitted with a plaster-of-Paris jacket. The curve of the stretcher is much more pronounced than I thought could possibly be comfortable three years ago, yet I have had many children on such



a stretcher during the last two years, and it is perfectly easy and comfortable. On this the children are out-of-doors all day long, weather permitting, and I am

endeavoring to so educate the mothers that they shall be out-of-doors daily, regardless of the weather. The child is simply fastened by buckles and webbing



passing around both child and stretcher, one at the level of the armpits, and a second just above the knees, the only precaution except fastening being to see that the apex of the deformity corresponds with the summit of the stretcher curve, and in cervical caries that the head and neck are steadied with sandbags fixed to the stretcher. No traction nor counter-traction is attempted, for it is unthinkable that traction, especially if applied in a straight line, can distract or relieve pressure in the spine, except through, and after straightening, the curves; and attempts at lessening or obliterating the curves would necessarily increase the pressure in the lower dorsal, in the lumbar, and in the cervical regions; for the foci of disease on a perpendicular plane is practically always

confined to the anterior segment. In the middle and upper dorsal regions, it is true that traction might possibly decrease pressure in the bodies, but this is much better secured by leverage, making of the kyphos a fulcrum, and allowing both the superior and inferior segments to fall by their own weights to a lower level, as on the curved stretcher. It is quite problematical if traction on the vertebrae could possibly distract, even if distraction was thought beneficial, and if immobilization is all that is expected from traction, then it is better secured by simpler means. When shall the child be gotten up? and how? are questions to be determined for each child. When is decided chiefly by the condition and actions of the child, modified by the location and extent of the tuberculous lesion; and how, solely by the location of the diseased area. The time comes when the recovering child will no longer remain quietly on



its back; despite your persuasions, your straps, and your buckles, it wriggles loose; it no longer feels the structural weakness in its bones, and asserts its

right to the hereditary position of the genus homo, and this can be accepted to a considerable degree as a signal that the active stage is over; and on examination then we find there is some returning spinal flexibility; in favorable cases its health is good, its flesh is firm, and its skin has the rosy glow of health; or perhaps the child has ceased to gain, frets at the confinement, and is getting anemic; or even, perhaps, the child is running down, and doing badly, and you feel the chance of improvement, in its general condition, from getting about, warrants the change; anyhow the question of maintaining rest in the upright position is before you, and how, constitutes the treatment of spinal tuberculosis in the reparative stage. In a paper read before this society in 1899, I said: "Tuberculosis of the vertebrae being practically confined to the bodies of the bones, and only invading the articular processes in rare instances, except when great destruction is present, the cause of the deformity is the tendency for the line of superincumbent weight to fall anterior to the focus of disease in the bodies. This tendency is readily prevented in the lumbar region, and comparatively so in the cervical region, and hard to prevent in the dorsal region, and especially so in the upper dorsal region, the rule being that it is easy to keep the line of weight posteriorly where the normal concavity is posterior, and hard where the concavity is anterior. Appliances for the treatment of spinal tuberculosis patients are of value, as they more or less confer immobility upon the spinal column, and shift the superincumbent weight from the bodies of the diseased vertebrae to, and maintain it in, a plane posterior to the bone lesion. The latter is the primal factor in limiting destruction and favoring repair, and when secured the former object is also practi-

cally obtained. By proper leverage this superincumbent weight is removed from the bodies of the diseased vertebrae to the articular processes, and fortunately tuberculosis of the spine, except in rare cases, contrary to the rule in the long bones, does not invade the articulations.

All apparatus used in the treatment of Pott's disease are to be considered as anterior-posterior levers, depending for their value and efficiency solely upon the ease and degree by which the leverage is obtained; and the line of weight in the upright position is moved and kept posterior to the point of disease in the vertebrae. This maneuver is of ready accomplishment in the lumbar region and around the last two dorsal vertebrae, and the mechanical problem a simple one, the indication being solely to maintain or increase the normal concavity in that region, and the leverage being simple, no difficulty is experienced; and apparatus, either of steel, wood, celluloid, leather, or what not, can be made fairly effective. This simplicity is not true, however, of the mid-dorsal region. With a very slight deformity at the seventh dorsal, and even at the eighth dorsal, the problem is a very complex one, and to get the upper arm of your lever long enough to apply and maintain sufficient power is not at all easy. This power is usually applied in front, at or even below the level of the second rib. In the Thomas brace only the upper edge of the chest pad or the weight-lifting point of the upper arm of the lever is supposed to reach this level; in the plaster jacket or any of the jackets or corsets made in the usual manner rarely does the upper edge reach above the angle of Ludovici, and this point is at the level of the lower border of the body of the fifth dorsal vertebrae. With a barely noticeable deformity in the mid-dorsal, and the

consequent falling of the anterior chest wall, this point would be at level of sixth dorsal, and with a slight kyphos would be on level of lower border of the sixth dorsal or perhaps opposite the seventh dorsal, and the upper arm of your lever would be almost infinitesimal, and the useful power would also, of course, be nil. This is true with disease at the eighth and ninth dorsal, although in a lessening degree as you go lower, and below this, of course, the lever is of a practicable length. To arrange any of the usual apparatus, either in the shape of a steel brace or a jacket, and applied in the ordinary manner, with the tuberculous disease at the seventh dorsal, the sixth, and even above this, as I sometimes see, is evidently mechanically ridiculous and futile, and demonstrates on the part of the one applying, a sublime faith that, perhaps, may move mountains, but can not give rest to the diseased bones, nor prevent destruction and deformity in tuberculosis of the vertebrae. It is also just as futile to apply a brace that is made of flexible steel, as shown in the shops, and I regret to say still ordered by physicians. Rigidity is the first essential in every spinal support, and must never, under any circumstances, be sacrificed to apparent comfort or appearance. With a lesion in the mid-dorsal region, the sixth, seventh, and eighth dorsal, some means must be found, if a mechanical efficiency is desired, of increasing the length and resultant power of the upper arm of the lever, for, as demonstrated in a previous paper, the suspension sling fails in this particular, at this level. If the trunk is forced into hyper-extension, not alone is the pressure removed along the anterior segments of the column and the anterior chest-wall lifted, with a lengthening of the upper arm of the lever, and consequent gain in power permitted, but the superior

segment of the trunk is moved posterior to its former position, and the line of super-incumbent weight will now fall more posteriorly on a perpendicular plane to its former position, and less power is really needed. Many devices are in use to accomplish this maneuver while the jacket is being made; they act, in the main, by perching, as it were, the trunk on the apex of the kyphos, and allowing the superior segment of the body to extend over this fulcrum, either by its own weight, or if this weight is not sufficient to get the desired position, traction and forcible extension are made to the requisite degree. With the spine over-extended in this manner, not alone are secured the advantages of the position as mentioned before, but the upper edge of your jacket is no longer limited by the angle of Louis, but will go easily to 2 cm. above the supra-sternal notch; in fact, its height is only limited by the pressure it makes on the trachea and the blood-vessels of the neck. For the last four years I have been in the habit of using the apparatus previously shown to this society, and am more and more impressed with its value. Photographs are presented of the apparatus in use, showing the position of the child while the plaster jacket is being made. Some of the eastern men have succeeded with the Taylor brace in these cases, increasing its efficiency by first curving the steel supports to the desired position, then laying the child on it, and fixing it with plaster of Paris to the brace; the plaster carries the brace support to a higher level, and thereby increases its leverage power. In the region between the first dorsal and the sixth dorsal, the problem is still by no means solved; to be efficient, the upper arm of the lever must be carried to a still higher point, and the lower cervical vertebrae should be controlled, and seizing the head is

not a satisfactory substitute. From a mechanical standpoint, the neck should be grasped, and this while easy of accomplishment is not readily borne by the patient. Apparatus to be effective must be retained, and to be retained on a child, must be fairly comfortable; and despite my best efforts the application of a force on the child's neck from before backwards sufficient to control the superior segment has been strenuously objected to, and when I have secured the child's consent and persisted, terrible distress and dyspnea have followed, and once alarming cyanosis ensued; hence, personally, controlling the neck directly is discarded, and for the time I am compromising on holding the neck through the head. For this purpose I prefer the apparatus devised by Sherman, of San Francisco, it having all the advantages of the Sayre, and is not so much under the control of the parents or child (which is not a slight recommendation), and also has the virtue of being a much more sightly arrangement. It consists, as you see, of a steel, leather-covered collar, with a chin-piece of modeled aluminum. This is projected from either a Taylor brace, with a moulded pelvic saddle of plaster, celluloid, or leather, or from a simple plaster jacket, and the power arranged by altering the curves in the steel projection rod, or the "frock," as we term it. Photographs of each plan are offered, and I show also Goldthwaite's apparatus, which I have not yet used, but consider thoroughly efficient, if fixed in the manner described above and not simply supported on the shoulders. In the cervical region, again, generally the mechanical difficulty is small; the normal concavity being posterior, any form of head support projected from a jacket or brace can be made efficient; even a wire head rest, properly padded, that maintains the normal concavity of

the neck and supported on the shoulders, will often answer every purpose. The medical treatment of spinal tuberculosis in children is the treatment for tuberculosis wherever manifested. The treatment of complications, such as abscess and paralysis, falls within the scope of Dr. Tebbetts' paper, and will not be considered here.

In conclusion: Giving rest to the diseased bones, particularly rest to the weight-carrying function of the bone, is the first essential in treatment. In the early stages of spinal tuberculosis, the necessary rest can be best obtained in the recumbent posture and in the supine decubitis. That traction alone, or with counter-traction, is unnecessary, and with disease in the lumbar, the dorso-lumbar, and cervical regions positively harmful, except for the attendant immobilization; and both that, as well as rest to the weight-carrying function, are better carried out by leverage on some such plan as the curved stretcher splint shown. After the active stage or the period of destruction has passed, the child can be gotten up and out, with the spine fixed, and the super-incumbent weight removed with the proper apparatus, and this apparatus does not consist always of a plaster-of-Paris jacket applied with child in suspension sling, but must necessarily vary with the location of the vertebral lesion. Apparatus are to be considered and used solely as levers of that class that have the fulcrum between the two points of force. The material used, whether plaster, wood, leather, celluloid, or steel, is of no importance, but only that it shall be light, easily handled, and capable of giving rigid support. In the lumbar and dorso-lumbar region a plaster jacket made in suspension or a Taylor brace can both be made efficient. In the lower dorsal it is better, and in the mid-dorsal region imperative, that suspen-

sion be discarded, and some plan of applying the corset or brace in the hyper-extended position be adopted. In the upper dorsal region, on account of the difficulty of getting sufficient leverage, the treatment is yet not satisfactory, and we are still working out the problem for each individual case, keeping the child recumbent for a longer period, and later using some head support projected from some form of steel or plaster which is fixed on the trunk. In the cervical region many of the head-carriage apparatus are satisfactory and give good results.

1616 California Street.

SYMPTOMS AND DIAGNOSIS OF POTT'S DISEASE OF THE SPINE.

By E. G. FRISBIE, M. D., San Francisco.

*Read before the Medical Society of the State of California
April 15, 16, 17, 1902, San Francisco.*

The early symptoms of Pott's disease of the spine are so obscure as to escape the notice, or, rather their significance escapes the notice of the physician, even though he be called early. These symptoms are rather vague, being comprehensively embraced under the term malaise: a little peevishness, a little loss of appetite, a lessened inclination to play, a diminished activity; such a train of symptoms as might follow any trivial departure from ordinary health. But the significant fact of such a condition continuing for a protracted period, should lead to an investigation of the cause of such persistence. The special symptoms accompanying the disease in question manifest themselves according to the portion of the spine in which the diseased area is located. They all, however, have this in common, that there is a tonic contraction of the muscles subtending the diseased joints. This is

the earliest special symptom, and it persists throughout the entire course of the disease, and is therefore the most significant and important of the entire group. As the inevitable result of this tenseness of muscle, we have the accompanying rigid or unyielding spine. That portion of the spine involved will not respond to passive motion in the manner that a normal spine will do, but moves en masse. Remembering the normal movements of the several portions of the spine, we detect directly any departure from it. In the case of small children this is not always possible at the first interview, by reason of the fright and resistance of the child to any motion. But subsequent observation or much patience in manipulation, and gaining the confidence of the little patient, will help to eliminate this source of error.

There is a very common error among medical men that a prominence or knuckle must be present on the spine to warrant a diagnosis of Pott's disease, and the sooner such an error is corrected the better is it for all concerned, physician as well as patient. A plea for an earlier diagnosis is what I wish to make, and a proper appreciation of the significance of the spastic muscle, and its concomitant rigid spine, will enable the practitioner to accomplish this. When we consider the pathology of the disease, and remember that no knuckle occurs in the spinous process till the bodies of one or more vertebrae are broken down and disintegrated, and so allow the spine to fall forward above and below the seat of the disease, thereby leaving a prominence at that point, we can appreciate how long the trouble must have existed before the destruction of bone has occurred through the slow disintegrating action of the tubercle bacilli.

Pain, which is a very common accompaniment of Pott's disease, is not felt at the seat of the disease, or, rather, not at

the spinous processes; and for a very good reason, since so great an interval exists between the spinous process at the surface and the body of the vertebra where the disease is located. The pain is most frequently referred to the terminal distribution of the nerves. In the cervical region more often than elsewhere it is felt at the seat of the disease; however, in diseases of the upper portion of this region the pain is complained of in the head, radiating along the distribution of the auricular and occipital nerves, and sometimes giving a feeling of burning inside the skull over the occipital area. In the lower cervical region the pain is referred to the neck, to the upper sternal region, or down the arms following the distribution of the brachial plexus. In the dorsal region the pain is felt in the front of the chest and abdomen, giving rise often to the belief that the patient is suffering with worms or indigestion; and where the trouble is in the upper dorsal region often causing attacks of asthma. In the lumbar region the pain is felt over the lower part of the abdominal wall and in the intestines and bladder, and is often projected down the limbs as sciatica.

Impairment of Function.—It follows from the state of rigidity of the muscles that impairment of function must ensue. And this is apparent in the upper cervical region by loss of the nodding, or rotary movements of the head, according as the disease is present in the atlas or the axis. In the middle and lower regions the spastic muscles hold the spine so rigid that the neck is stiff, and the patient turns the body to follow the sight of an object, instead of turning the neck, as is done in health. In the dorsal region, by reason of the fact that less motion exists in the normal spine, the symptom of impairment of function is much less apparent; but the gait of the patient, as

though walking on eggs, with the knees and hips slightly flexed to produce curves and thus diminish jars upon the sensitive, inflamed structures, gives an index to the condition.

Lumbar Region.—In the lumbar region the mobility is markedly impaired by the spasm of muscle, and is well demonstrated on the attempt of the patient to stoop and pick up an object from the floor; he supports himself on the knee or some near-by object, and gets down and up carefully and awkwardly, holding the lumbar spine in inflexible rigidity. It refuses to bend in any direction.

Atrophy of Muscles.—As in hip disease the muscles which are in a state of tonic contraction atrophy rapidly, so here the muscles of the spine, and especially the erector spinae group, are visibly shrunken.

Deformity or Distortion.—Beginning again in the cervical region, we have a departure from the normal contour of the spine, which may be an antero-posterior angular projection, but is more apt to be a rotary and lateral deviation, resulting in wry-neck. Prominences may be felt laterally, and in the upper part inspection and palpation of the pharynx may reveal a prominence that is not at all visible from the exterior.

Dorsal Region.—Here the characteristic anterior-posterior angular curvature is more apt to be seen, and rather early in the course of the disease, by reason of the normal posterior curve of the column. A method of ascertaining this as early as possible is well illustrated by Whitman, who advises extreme forward flexion of the entire spine, either in the sitting or standing position, when a break in the normal rounded outline will be apparent much earlier than a decided angular curvature, and especially in the erect position.

Lumbar.—Here the distortion does not come so early; but when it does appear, obliterating the normal posterior concavity, it is very striking, and results in a still further backward curvature of the dorsal region to maintain the equilibrium, and so the position of over-erectness is assumed. Some lateral deviation of the column may appear in any portion of the spine if the destruction of a vertebral body has first begun on one side. Added to the distortion of the spine itself, we often find the thigh somewhat flexed by reason of irritation of the psoas muscle by abscess, and by its contraction drawing up the thigh.

Attitude.—The attitudes of the patient are often suggestive and striking; for instance, in the cervical region the hands supporting the head, either at the sides or under the chin, is a favorite attitude. In the upper dorsal region the elevated, rigid shoulders give the well-known military attitude. In the lumbar, the over-erect position, with often some lateral deviation, and the flexed thigh give a characteristic picture.

Diagnosis.—In all cases the examination must be methodical, and the first requisite is the exposure of the entire back in a good light. First observe the walk or the patient in motion; then test the several portions of the spine for mobility, and at the same time note any undue prominences or distortion. If the patient be a small child, the cervical region may be tested by having the mother walk to a little distance this side and that, or, with some object likely to interest the patient, make motions so as to induce the child to follow it with the eyes, and be obliged to bend and rotate the spine to keep it in view. The dorsal region may be tested by seating the patient at the edge of a table and making anterior-posterior and lateral motion of the trunk. The lumbar and lower dorsal

is best tested with the little one lying prone on a firm couch or table, and by seizing the legs and lifting them and swaying them from side to side, while the other hand presses down and fixes the spine above, the flexibility of the lumbar region is determined. If the patient be older, voluntary movements of the various portions of the spine may be made at the request of the surgeon or parent, and so the mobility tested. Requesting the patient to pick a coin from the floor will demonstrate his ability to stoop readily and easily, or the reverse, and so any departure from the normal mobility may be noted. Aside from the complications which are presented by another member of the committee, these are the main points, and there remains but to consider the differential diagnosis. A slight elevation of temperature is usually present, but not necessarily so, and its absence can not exclude the diagnosis of Pott's disease. In the dorsal region what seem to be asthmatic attacks often accompany the disease, from pressure on the intercostal nerves, and a peculiar grunting sound with respiration takes the place of the night cries so frequent in hip and knee-joint diseases, though night cries do occur in spinal disease, also, but with much less constancy.

Differential Diagnosis.—Lumbago may simulate, but it is an acute disease, with sudden onset, and usually presents local tenderness. Strain of back, acute, presents localized pain, tenderness, restriction of motion voluntary. Sciatica: In Pott's usually bilateral; other form unilateral. In sciatica movements of legs painful and spine fairly movable. The reverse is true in Pott's; legs free, spine rigid. Sacro-iliac disease has the pain and sensitiveness localized about the seat of the disease. Bilateral congenital dislocation of the hip may simulate the

gait and attitude of lumbar Pott's disease, but the history of it, congenital existence, and the absence of rigidity of the spine suffice to exclude the latter. When psoas contraction is present in lumbar Pott's disease, the resulting limp often suggests hip disease; but when it is remembered that this is a late complication in Pott's as a rule, the history of its early appearance, and the fact that further flexion allows free movement at the hip, will suffice to exclude hip disease. Hip disease in infancy: At this early stage the stiffness of muscles about the hip-joint is often shared by the lumbar muscles, and vice versa, so that several examinations may be necessary before a final conclusion can be drawn, and perhaps the application of a temporary support to the hip may suffice to clear up the diagnosis. Secondary hip disease following the primary spinal affection may make the differential diagnosis exceedingly difficult. Pelvic abscesses, occurring as they do so often as a complication of Pott's disease, will have to be carefully studied as to their origin and onset, in order to determine whether they are a sequel of Pott's disease or of independent occurrence; the greater rigidity of the spine will be of the most service in this differentiation. Rachitis of the spine is differentiated by the concomitant evidences of the disease in other parts of the skeleton, especially the epiphysis of the long bones, and by the fact that the kyphos, which is rounded rather than angular, may be much reduced by gentle pressure thereon while the thighs are elevated, the patient lying prone.

The Roentgen ray is of value in assisting diagnosis, as the prints which I have shown illustrate. It serves well to locate the disease and indicates the number of vertebrae involved.

1610 Van Ness Avenue.

THYROID EXTRACT IN GYNECOLOGY.

By J. COPLIN STINSON, M. D., San Francisco, Cal.

Read before San Francisco County Medical Society, June 6, 1902.

Thyroid extract is a comparatively new remedy. The preparation with which I am most familiar is thvroidin—dried extract of sheep's thyroid; one part represents six parts of fresh gland—a whitish powder; dose, one-half to one gr., gradually increased to two grs. three times daily. It is generally alterative, antifat, a uterine alterative, anodyne, sedative, and antiphlogistic. It has been used in myxedema, cretinism, psoriasis, goiter, exophthalmic goiter, obesity, chronic melancholia, fractures, fibroid tumors of the uterus, ovaritis, hemorrhagic affections of the uterus, pelvic congestions, hemorrhagic endometritis, menorrhagia, amenorrhea as a part of obesity, hemorrhages dependent upon flexion and versions, frequent abortions, chronic tubal disease, sterility, keloid, chlorosis, gout, rickets, diabetes, acromegaly, deafness, and hemorrhages of the myxedematous, sclerosis of the middle ear, as a galactagogue, cancer of the uterus, and in recurrent cancer of the breast. The writer has been studying clinically the action and uses of thyroid since it was introduced to the profession, and in this paper takes up the action of this animal extract in gynecology.

I. In dysmenorrhea and ovarian neuralgia, i. e., in those cases where an examination does not reveal any lesion of the pelvic organs. The difficulty in relieving and curing cases of dysmenorrhea depends upon the fact that their impressions of pain become more and more marked as time goes on, and nothing so much increases their susceptibility as the use of opiates. The abuse of opium, other narcotics, anodynes, and stimulants

is widespread, and, furthermore, these drugs, after routine use, induce conditions of the nervous and other systems that are more difficult to cure than the original disease. Having determined the conditions of the uterus, ovaries, etc., in all cases wherein an examination is justifiable, the treatment is commenced. For the pain many remedies have been used; opium in some form is most frequently used. No remedy is more abused nor should be prescribed less frequently, as more harm than good has been done by its administration. It is very easy to get into the habit of using it, and only in very extreme cases should it be used, and then it should preferably be given in the form of a suppository. Of course, all cases of dysmenorrhea are somewhat relieved by rest, recumbent posture, hot applications to the lower abdomen, and hot douches, but there are many patients who can not afford to lay up for several days each month. Extract of the thyroid supplies material to the system, which influences metabolism, is carried in the plasma to the tissues of the organs, and has a specific action upon the vasculo-motor-nervous mechanism of the uterus and adnexa. Reaching these structures, it takes part in the process of metabolism, becomes loosely incorporated with the anatomical elements of the parts, and in passing through them takes part in their activity, modifies their action, and lessens their blood supply. As the sensibility to uterine and ovarian pains is readily diminished and abolished by thyroid extract, it is thus a uterine and ovarian anodyne and sedative. It arrests the afferent impressions at their formation. It also belongs to that class of nervous depressants that paralyzes the medulla before consciousness is destroyed, i. e., same class as aconite. It is an indirect anodyne, as it does not act immediately through the brain, but attacks the patho-

logical case of the pain in the uterus, etc., upon which it thus acts as a specific anodyne. Thyroid, possessing a powerful and peculiar action like this, can fully serve the name of a uterine alterative, anodyne, and sedative.

Marked systemic effects are produced by repeated medium doses of thyroid. The nervous and vascular systems are considerably affected, the pulse rate is increased, arterial tension lessened; the cerebrum is somewhat stimulated; loss of weight shows increased tissue waste; and the normal functions of the skin, uterus, and presumably other organs of the body, are reestablished. In April, 1901, the writer was treating a patient for painful menstruation. For years she had suffered severely with pains at each period, during which time she had to cease her work, go to bed, apply hot applications, and use internally hot drinks, household remedies, whiskies, paregoric, opium in several other forms, and many other remedies, without much relief. Examination of her pelvis and abdomen showed, as far as I was able to detect, that the uterus and ovaries were in normal position and good condition. I prescribed for her suppositories of belladonna and opium, and gave in addition internally belladonna, chloral hydrate, viburnum, and paregoric. These afforded her some relief. I also several times at my office dilated the cervix uteri, using metal dilators. These produced considerable pain, even with free use of local anesthesia, but relieved the severe menstrual pain somewhat when her periods came on. A few months later, on account of considerable obesity, I put her on a diet, exercise, and extract thyroid internally. She had been using the thyroid for several weeks when her menstruation came on. She continued the thyroid during this time, and she afterwards reported

to me that she had gone through her period without any pain, whereas all other times she had suffered severely. The thyroid reduced her weight twelve pounds, and she has since then been relieved at each period of dysmenorrhea by the administration of thyroidin, gr. i, in capsule, three times a day, given for two days before menstruation, and increased to grs. ii three times a day during menstruation. She was and is thus completely relieved of pain, without producing any disagreeable symptoms; furthermore, the thyroid appears to act also as a general tonic, increasing muscular and nervous energy. Since this case the writer has repeatedly used thyroidin in painful menstruation, with nearly perfect results, affording nearly perfect relief in over 80 per cent of cases; thus it is evident that thyroid extract is efficacious; administered as above described, it does not produce thyroidism, as the drug is not taken long enough at a time to produce untoward symptoms. If during the interval there is pain (neuralgic) in the uterus or adnexa, I find that thyroidin, gr. i to ii, administered twice or thrice a day, acts splendidly in relieving pain, without producing any untoward symptoms. Cases not relieved by thyroid or other treatment should be subjected to surgical operation, i. e., through dilating of the cervix uteri, and whatever other additional operations are required. During the intervals constitutional and local treatment may be required. This implies correction of all defective hygienic conditions, greatest care in diet, bathing, dress, exercise, and mental exertion, regulation of the bowels. Moderate sexual intercourse has a favorable influence in these cases. Pregnancy and childbirth often cure the disease. Reduced iron, gr. one-half, arsenic gr. one-sixtieth, strychnia gr. one-sixtieth, gentian gr.

one-fourth, and cascara gr. one-half, in pill or capsule, taken daily three times after meals, or more frequently, is of value in the anemic. The general nutrition should be improved by malt extract and a full diet. All excitement, both local and general, as well as excessive sexual intercourse, dancing, and the prolonged use of the sewing machine, should be avoided. All pathological lesions of the uterus, adnexa, and vicinity should be remedied by proper medical and surgical treatment. Any disturbance of digestion and excretions should receive appropriate diet and treatment. 2. In some cases of myxedema, and in women deprived of the thyroid gland, there are excessive menstrual discharges, and, as these patients grow older, the menses last longer, until finally there is almost constant flowing. These hemorrhages are directly amenable to thyroid treatment. 3. In endometritis, with hemorrhages, thyroid is of value, by stopping the bleedings, relieving pains, and lessening pelvic congestion. 4. Thyroid extract is of value in painful and adherent ovaries (ovaritis), as it lessens the amount of blood supply and relieves the pain. 5. Menorrhagia or merorrhagia, from whatever cause, even when associated with retroversion or prolapsus, nearly every case is favorably influenced by thyroid. 6. In cancer of the uterus, etc., recurring after thorough radical operation, thyroid should be given internally, as the hemorrhages may cease and the pain, swelling, and congestion decrease; possibly the growth may be retarded or cured, as a case of recurrent cancer of the breast was apparently cured by continuing extract of thyroid for eighteen months. 7. In frequent abortion thyroid treatment is especially indicated; when an abortion case is seen early, and thyroid is given, the menstrual flow is stopped by its con-

tinued use, and the impregnated ovum is retained. Thus in sterility from frequent abortions such women have been able to have children after years of sterility. 8. Uterine fibroids and myomas are favorably influenced by thyroid, by lessening the blood supply to the pelvis, stopping bleeding and pain, and relieving fulness of abdomen. In some the tumors are reduced considerably in size; in others the growth is arrested; and in most the general health is improved. If thyroid causes too much gastric irritation, it should be discontinued. When dose is pushed to maximum and long continued, in fibroids, as in other cases, thyroidism is produced, i. e., tachycardia, restlessness, sleeplessness, and indigestion, and, unless the remedy is stopped, the general health is apt to deteriorate. After discontinuing thyroid by ordering ergot, the good effects are sometimes maintained. After stopping thyroid, in about 20 per cent of cases the fibroids frequently begin to grow again, increasing much in size. Thyroidism in some cases is due not so much to the large doses and continued use of the remedy, but to poisoning from animal decomposition, so always try to be sure that the preparation used is pure and fresh. 9. Extract of thyroid is useful in uterine hyperplasia and subinvolution, to reduce size, sensibility, and congestion of the uterus. 10. As a galactagogue, whenever the secretion of milk is diminished. 11. In chronic ovarian and tubal disease, by lessening blood supply and relieving pain. In passing, I may state that an animal extract from parotid gland has been used in ovarian disease, etc., being given in addition to the routine treatment, with ichthyol, tampons, iodine, hot douches, and is said to have relieved symptoms and improved the local pathological conditions. It seems to the writer that there does not appear

to be any special relation existing between the parotid gland and the ovaries and uterus, and, furthermore, any good results that were produced in the reported cases were due in all probability to the hot douches and ichthyol, which are very valuable in inflammation wherever located.

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A CASE OF TETANUS SUCCESSFULLY TREATED WITH ESERIN.

By CLYDE BRIGGS LAUGHLIN, M. D., Reno, Nevada.

Mrs. R., age 65, housewife, complained of severe pains in the muscles of lower jaw, which were lancinating in character and accompanied by spasmodic contractions of same muscles, attacks occurring at intervals of a few minutes; severe headache. Past History.—General health good; has not been very strong for several years. Eight days ago injured the great toe with a tack; Jan. 2, 1902, called at office, complaining of pain in toe, and upon examination found it slightly swollen and tender; opened at seat of injury and evacuated pus; cauterized wound deeply with 10 per cent silver nitrate solution. Present History.—Patient has

severe headache, very nervous, severe lancinating pains in masseters at frequent intervals; these pains are accompanied or instantly followed by violent contractions, which prevent movement of lower jaw. Patient also complains of a less severe pain in the posterior cervical muscles, occasionally extending to muscles along the spine as far as lower lumbar region. Physical Examination.—Patient well nourished; pulse intermittent, mitral systolic murmur; extremities slightly edematous; appearance of toe same as on previous day. Microscopical examination of pus from wound (Gram's stain) shows typical rods and spores of the bacillus of tetanus. Treatment.—With the fact in mind that one of the chief features in the physiological action of physostigma is to relax muscular contractions, I administered gr. $\frac{1}{80}$ of eserine sulphate hypodermically. Before one hour had elapsed there was a noticeable improvement, and at the end of four hours the contractions of the masseters had almost entirely disappeared; however, there was a strong tendency toward a recurrence and still considerable pain. Five hours after administration of the drug, I repeated the medicine, and continued to do so every five hours during the next two days. During this time I gave strychnia gr. $\frac{1}{30}$ every four hours. Up to this time the patient had taken very little nourishment, as any liquid taken caused severe pain in the jaw muscles, and the stomach had a tendency to expel its contents. Patient had not slept since beginning of attack. On evening of second day gave a large dose of bromide of soda, and she passed a very restful night, showing marked improvement on the morning of the third day. During the two days following, I gave eserine in same dose every ten hours, also bromide of soda, and strychnia

in smaller doses. By the end of the fifth day all signs and symptoms of the disease had disappeared, and did not return.

I add a few words regarding the drug used in this case, because we know so far very little about its administration internally or hypodermically, with the exception of producing myosis. It is recommended in tetanus, chorea, epilepsy, in intoxication through strychnia and atropia, but the different experiments are not complete, some of them contradicting each other in regard to the results, as shown by Harnock and Withowski regarding epilepsy. Since Schweder called attention to the fact that the heart is extremely sensitive towards physostigma, its use in internal medicine was nearly given up. We even do not know much about the doses which should be used without danger, so I consider this case worthy of notice, especially because of the result.

ERYSIPELAS.

By A. B. GROSSE, M. D.

Read before the Amicitia Medical Society of San Francisco, February, 1902.

Definition.—Erysipelas is a specific acute inflammation of the skin and subcutaneous tissue, characterized by shining redness, swelling, heat, and pain, accompanied by fever and constitutional disturbances, and, after running an acute course, ending in desquamation.

Symptoms and course show a certain analogy with the acute exanthemata. The skin symptoms are usually preceded from twelve to twenty-four hours by a chill, followed by fever, gastric disturbances, vomiting, and general malaise; hence identical with eruptive fever of the acute exanthemata (Kaposi).

The erysipelatous inflammation attacks an area about the size of a dollar, and is accompanied by a feeling of tenseness, slight pain, or itching. This area is usually an irregularly-defined, raised, red spot, in which the skin is smooth and shiny, and its edges are moderately raised above the healthy surrounding skin. This area seems hot, tense, painful to pressure, and upon pressure redness disappears, giving way to a yellowish tinge (E. Glabrum). During next few days the inflammation spreads evenly in every direction, so that after two or three days the affected area has become the size of a hand, or even twice that. In benign cases the disease reaches this stage, its acme, in from three to five days, and then remains stationary (E. Fixum). Temperature 102 to 105 degrees Fahr.; insomnia, headaches, slight delirium, dryness of tongue, which had accompanied this process, cease, while the skin gradually returns to normal. The bright red of the erysipelas becomes bluish-brownish red, even pale brown. The turgescence and tenseness of the skin disappear, and the pigmented epidermis (brown) is desquamated as fine scales, and the skin is again normal. Appetite and sleep gradually return during process of repair. This process may take from eight to thirteen days, in direct ratio to the area involved. From this most general and frequent type, there are exceptions, some more benign, others grave. The lesion may not exceed the dollar-sized area, i. e., become fixed early, but nevertheless will be accompanied by symptoms enumerated above, and may even remain for quite a long period, until repair sets in. The intensity of inflammation may become so great that serous infiltration in the epidermis may cause vesicles and bullae, which stud the inflamed area (E. Vesiculosum et bul-

losum). When the contents of the vesicles become purulent, we have erythema pustulosum, and when these pustules dry, erythema crustosum. Even in the corium the infiltration may become so great that mechanical pressure and compression cause gangrene, i. e., voiced in eyelids, penis, scrotum, sacral region, or in purulent cellular degeneration of the tissues, furuncles, and the formation of abscess. More important than the above-described characteristics, at least from the standpoint of prognosis, is the migration of this lesion (E. Migrans or ambulans). While ordinarily after the lesion has reached a certain size, becomes fixed, and then goes on to repair, in the migrating form it increases in one or more directions continually, while the parts first attacked tend to heal. The disease always progresses from the place where the edges are raised most markedly through a number of pointed creepers into the healthy tissues and along Langer's lines. In this manner the disease can cover large areas, in fact, even the whole body; and returning to the initial location complete the cycle a second time. In the areas which have returned to normal, new foci may develop, usually in the nature of a lymphangitis. From four to six weeks are usually consumed by the course of this trouble, during which time the patients become greatly prostrated on account of fever which accompanies it and rises during its exacerbation. In direct ratio as the erysipelas involves larger areas and persists a longer or shorter time, the dangers and frequencies of complications increase, i. e., delirium, sopor, cerebral edema, meningitis, pulmonary edema, pneumonia, edema of glottis, pleuritis, endomyo, and pericarditis, metastatic inflammation and abscesses of joints, fibrous

tissue, the skin, subcutaneous tissue, and pyemic processes in general.

Erysipelas faciei is the most frequent form of trouble. This usually arises from a spot on the nose or the cheek, and quite frequently from nasal and oral mucous membrane. The whole face may be primarily or successively affected. It is greatly swollen, the lips are puffed, saliva trickles from the mouth copiously, the tongue is brownish-red and dry, oral and pharyngeal mucous membranes dry and shiny, eyelids closed, edematous, at times gangrenous, the ears puffed, auditory canal swollen and closed, the skin in places studded with vesicles and crusts. The patient is delirious, with a temperature of 105 degrees and a rapid, incompressible pulse, or he is depressed with slowed pulse, seems apathetic, or is in a stupor. Very dangerous we must consider cerebral symptoms, particularly when disease attacks scalp. From there it usually spreads to neck. On the scalp, as the hair covers the seat of disease, it is recognized by pain upon touching, and a pain that seems to be localized in each and every hair. After repair the hair, or great part of it, is lost on account of exudation into the follicles (Haight). Some people have frequent attacks of this trouble, and in these cases edema perstans pachydermia, or even elephantiasis, may develop. Erysipelas may start from any part of the body, i. e., from wound, inflammatory and pus foci of all kinds, from the umbilicus of the new-born, formerly from the point of vaccination, from the genitals of puerperal women, from the extremities of persons having varicose veins, excoriations, and pustules.

Etiology.—Due to the introduction into the skin of the streptococcus erysipelatus (Koch-Fehleisen). Staphylo-

coccus may cause a lesion which clinically is identical with erysipelas. Kaposi, though he accepts the Koch-Fehleisen coccus as an etiological factor, does not consider it the only one, but holds with Hebra and Billroth that erysipelas never occurs except upon the presence of phlogogene and pyrogene substances in the lymphatics. He considers erysipelas as a lymphangitis capillaris cutis on account of the fact that in nearly every case an inflammatory or pus focus which is capable of producing such pyrogenic substances may be demonstrated, i. e., skin abscess, necrosis of rib, pus in Douglass pouch. Principally the fact that erysipelas mends as soon as the incarcerated pus is drained, i. e., erysipelas is caused by disintegration of incarcerated pus as the sequel of an auto-infection. There exists the popular fallacy that facial erysipelas is caused by cold, but, as above, one must look for the cause, i. e., caries of tooth, eczema, lupus, scrofula, syphilis of nasal mucous membrane, chronic affections of antrum, retropharyngeal abscess, and all inflammatory infections of mucous membranes. It is generally accepted that people who have once had facial erysipelas are predisposed to recurrences, which is true, but not because they are more susceptible to cold, but because the above-named conditions still exist.

Pathological Anatomy.—Infiltration of skin, epidermis, corium, subcutaneous connective tissue with an exudate, the exudate being more serous and less rich in protoplasm than that observed in ordinary phlegmonous inflammation of the skin. The bullae represent rapid exudation of this same serosity to the congested epidermis, and the elevation of the latter in consequence. The elements of the rete and connective tissue

are for the same reason swollen. The lymphatics and blood-vessels are enlarged, and the cutaneous follicles are engorged, the root sheath of the hairs being occasionally separated, thus necessitating temporary loss of the pilary growth. In proportion to the severity of the exudative process, pus corpuscles may appear and represent, for the most part, degenerative changes in the subcutaneous tissues resulting in abscess. Blood in erysipelas. Leucocytosis is greatest at acme of temperature, and decreases with remission of temperature. Polynuclears are increased in beginning of disease, but are steadily decreased during course of disease, till they fall sometimes even below normal in number. The large mononuclears are not markedly increased during fever period, but the day before an exacerbation of temperature are found increased. In the differential count, lymphocytes are found greatly decreased, and will approach normal upon cessation of fever; hence increase of lymphocytes shows a tendency to convalescence. Eosinophiles are absent during fever, and return sometimes in greater numbers than normal upon cessation of fever. In fatal cases, leucocytes are greatly increased over 12,000. In the differential, the polynuclears are 92 per cent and more. A sudden increase of polynuclears precedes and heralds a recurrence before skin or temperature give you any inkling. In erysipelas migrans, new outbreaks are to be foretold by increase or cessation of decrease of polynuclears. Urine. Diaz reaction appears in about two-thirds of the cases, is constant in several, and absent in benign cases. Its absence in benign cases is a good prognostic sign. In grave cases where it has been present for a few days and then disappears is a sign

of fatal termination. Kidney.—Acute parenchymatous swelling, very scanty urine, albumen, epithelial debris. Heart.—Next to rheumatism, erysipelas causes most frequent trouble in the heart, endo and myocarditis. Suppuration frequently takes place, particularly at the following points, on account of their anatomical construction: Ankle, outer thigh, trochanter on back, hairy scalp. In the face, where eruption is most frequent, suppuration is very rare. Prognosis is fairly good, as suppuration usually remains circumscribed; hence avoid incision as long as possible, or until perforation threatens, as large purulent collections are said to disappear without untoward consequences. Glandular suppurations are rare. Articulations.—Superficially situated joints are invaded with acute inflammatory symptoms, very severe pain, and synovial sacs are quickly distended with fluid, which rapidly becomes purulent, and in brief time destroys the joint, sometimes necessitating amputation. Prognosis in these cases is highly unfavorable. If erysipelas is complicated by diabetes, Bright's alcoholism, and hepatic affections, prognosis grave. Jastrowitz considers torpidity, or retarded liver function, an etiological factor.

Treatment.—It would be entirely useless to discuss the pros and cons of the many remedial agents, both local and internal, that have been recommended. Suffice it that erysipelas is an infectious fever, so that our treatment must be supportive. Food, alcohol, tincture of iron, baths. Externally, anything which will relieve the tensility and turgescence of tissues, i. e., salves and evaporating lotions. Roswell Park advises unguentum Crede, i. e., inflamed area is scarified, but not sufficiently to draw blood, salve is rubbed in, and seat of

disease covered with oiled silk, so that unguentum may be absorbed. Anti-streptococcic serum, if freshly prepared, and the disease is due to a pure streptococcic infection, will give most excellent and speedy results. In albuminuric cases, baths from 68 to 72 degrees every four hours are indicated, and will give quite excellent results, while internal medication will create trouble.

RECENT THERAPEUTIC ADVANCE IN OPHTHALMOLOGY.

By WILLIAM ELLERY BRIGGS, M. D.,
Sacramento, Cal.

Read before the California Northern District Medical Society.

The marked advance in pharmacy during the past quarter of a century has given the physician of to-day an especial advantage over the profession of previous times. This improvement has given us the power to prescribe accurately and agreeably to the patient. I wish to express our deep debt of gratitude to the scientific pharmacists who are constantly making it more nearly possible for us to prescribe with scientific accuracy. I will say in passing that I expressly do not include in my commendation the horde of pseudo-pharmacists who bombard the profession with literature and modest agents extolling the virtues of their secret proprietary or patent compounds. Most of these mysterious mixtures are made up of drugs that are in constant use by the profession, and that can be compounded much more cheaply and just as well by our own pharmacists from the physician's prescription.

I trust that it will not be considered unbecoming in me to mention the fact that the general profession is also indebted to ophthalmology for the investigation and introduction of many reme-

dies that have been of vast importance to the progress of general medicine. Among the remedies whose medicinal qualities, indications, and contra-indications were first determined by the study of their effects upon the eye tissues may be mentioned the local anesthetics and also the desanguinating power of suprarenal extract. These remedies are a great boon to the physician in many emergencies.

Cocain has come into such general use that some of the local anesthetics introduced since have not received the attention their virtues deserve. Although holocain has been in use for several years, I wish to speak a word in its favor, as I think its value as an ocular anesthetic is not appreciated as generally as it should be. It has several advantages over cocain, and has largely supplanted that remedy in my practice.

Among the qualities that make it more desirable in certain cases than cocain are: (1) Solutions of holocain can be boiled without deleterious effect, and can thus readily be made sterile; (2) it has no injurious effect upon the corneal epithelium, and can therefore be used in diseases of that membrane without danger of increasing the process already established; (3) it does not act upon the pupil. Frequently the dilatation of the pupil after the use of cocain is a source of great inconvenience to the patient; (4) holocain is slightly antiseptic, and will keep in solution a long time unimpaired; (5) it acts with greater promptness than cocain; (6) it does not blanch the conjunctiva and produce the staring appearance caused by cocain.

The qualities mentioned make holocain much less dangerous for continued use than cocain. I have seen numerous instances in which patients have seriously injured their eyes by the frequent application of cocain for the relief of

pain. The practice of giving the patient cocain in solution for use at home is dangerous, and should rarely be done. Avaricious druggists occasionally give patients complaining of eye pain cocain solutions, with disastrous results.

Dionin is a new compound that has of late received much deserved attention from ophthalmologists. It is derived from opium, and chemically is closely allied to morphin. Some oculists have found dionin so universally beneficial that one is inclined to take their statements with a grain of salt and await more extensive experience in order to arrive at a conservative estimate of its value.

Its beneficial effect is said to be due to its twofold action. Wolffberg first pointed out its power of hastening the absorption of plastic exudate, and Darier discovered its calming action upon deep-seated pain. It has a slight antiseptic action, and it is probably to that quality that its action in promoting the cicatrization of corneal wounds and ulcerations is due. It is also said to stimulate the lymphatic system, and thus promote the absorption of exudate.

M. Soulier, who has used dionin extensively, finds it beneficial in the following conditions: (1) In calming the deep pain of herpes cornea; (2) in corneal ulcers with severe pain; (3) in corneal abscess accompanied with severe deep pain; (4) in calming the deep pain after operation for glaucoma; (5) in relieving the deep pain coming on after the removal of foreign bodies from the sclero-corneal margin; (6) in calming the pain of irido-choroiditis; (7) in relieving temporarily the pain of tubercular keratitis; (8) the pain of rheumatic iritis was relieved by dionin accompanied with salicylate and anti-pyrin without the use of morphin; (9) after cataract extraction resolution was hastened by the use of dionin; (10) in

mild infection after operation sub-conjunctival injections exerted a favorable action.

Most of the oculists whose opinions I have seen expressed in regard to it state that it is indicated in all deep-seated pain in the eye and where exudate exists in the eye tissues. In my practice I have found it has a beneficial influence upon corneal infiltration and painful keratitis. It seemed also to have a decided effect in clearing the pupil in two cases of traumatic iritis with much exudate. I was also pleased with its effect in a case of syphilitic iritis. It appeared to both quiet the pain and assist in dilatation of the pupil.

I have generally used a two per cent solution twice a day, but in a few instances I have introduced a small quantity of the powder into the conjunctival cul-de-sac. Dionin should not be used to the exclusion of other treatment indicated in the case. Its principal virtue, in my opinion, is its power of accelerating the effect of other remedies. It certainly promises to be of much value in numerous ocular diseases, particularly those accompanied with severe deep pain.

Protargol is a remedy that justly deserves its popularity among oculists. It has several marked advantages over nitrate of silver. It has undoubtedly a much greater penetrating power than silver nitrate. It does not cauterize the tissues, and is much less painful to the eye. In keratitis accompanied with catarrhal conjunctivitis, silver nitrate is too painful, and its use is often injurious to the corneal disease. Protargol not only cures the conjunctival inflammation, but has a favorable action on the corneal ulceration as well. The reaction from the protargol is so much less severe than silver nitrate that I have used it in cases of gonorrheal ophthalmia much earlier than I would have felt

justified in employing the nitrate, and I think it has given good results. I especially recommend protargol in conjunctivitis associated with corneal ulceration, in suppuration of the lachrymal sac, in the early stages of gonorrheal ophthalmia, and in ophthalmia neonatorum. I would also urge its use as a prophylactic in the eyes of the newborn. The severe reaction often produced by the use of nitrate of silver has caused it to fall into disrepute, but I believe that protargol will be found quite as efficient, and free from the objectionable qualities of the older remedy.

Protargol should be used in from ten to twenty per cent solutions, applied to the everted lids. I have occasionally ordered a one-per-cent solution as an astringent for use at home. My results have been so favorable with protargol that I have given the newer remedy argentamin little attention. In the few cases of catarrhal and purulent conjunctivitis in which I have used a five-per-cent solution, the results have been favorable, and I will continue its use, to determine whether it possesses any special advantages over silver nitrate and protargol. It is recommended in from two to ten-per-cent solutions.

My experience with orthoform in painful corneal ulcerations has been disappointing. It has also failed to fulfil its early promise of benefit in painful tubercular ulceration of the larynx.

The extract of suprarenal capsule has caused much discussion as a remedy in ocular therapeutics during the past few years. It is, I think, too early to state dogmatically whether it has any decided curative action in ocular disease. It certainly has a powerful effect on the vessels of the conjunctiva, iris, and ciliary body. It lessens intra-ocular tension, and assists in dilatation of the pupil. It undoubtedly assists the action of atropin and eserin, and also increases

the effect of local anesthetics. It is a valuable agent, even if it has no other therapeutic action than increasing the efficiency of atropin, eserin, and the local anesthetics.

It is of marked assistance in preventing hemorrhage in strabismus and pterygium operations. Park, Davis & Co.'s solution of adrenalin chlorid, 1:1000 to 1:10000, has taken the place of the powder in my practice. This solution is made with five-per-cent chloretone, and keeps a long time unimpaired.

429 J Street.

THE PREVENTION OF POST-OPERATIVE ADHESIONS.

By J. HENRY BARBAT, M. D.

Read before the Medical Society of the State of California, San Francisco, April 15, 16, 17, 1902.

This subject is one which has received too little consideration at the hands of most abdominal surgeons, and patients are dismissed after operative procedures with the probability that post-operative adhesions will take place, which will make the second state of the patient worse than the first. This will obtain principally after conservative operations on the adnexa, or where large surfaces are left uncovered by peritoneum, and also in cases where numerous adhesions have been broken up between the uterus or adnexa and the surrounding structures. Two years ago, in conjunction with Dr. McCone, I conducted a series of experiments in the laboratory of the medical department of the University of California, to determine whether we could find some substance which would be effective in preventing adhesions between raw surfaces left after intra-abdominal operations.

The operations consisted in transplantation of ovaries from the rabbit to the dog and from the dog to the rabbit. In every case the parts operated on, or

rather one side, was covered with a sheet of the various materials with which we experimented. I first used thin sheets of gelatin, which had been dipped in a 4 per cent solution of formalin for 24 hours, thoroughly washed in pure water, and then preserved in alcohol until ready for use. Before placing them in the abdominal cavity, they were dipped in sterile water, to remove the alcohol. It was found that the gelatin was too frail to stand much handling, and required a great deal of care in placing, to avoid tearing, so I tried chromicizing, but with no better result. I then made use of gold beaters' skin which had been dipped in melted gelatin and then formalined. This was easy to handle and apply, and a number of operations were done in which the raw parts were covered with this material. Records were kept of the various experiments, and in from three to nine months many of the animals were killed and the results noted.

I am sorry to say that instead of preventing adhesions, the introduction of the foreign bodies seemed to encourage them, and in every case the side which had been covered was more closely adherent to the surrounding parts than the side which had been left uncovered; in fact, the irritation produced by the materials which were used seemed to have produced a slight inflammatory condition, which caused adhesions, because in a number of cases there were no adhesions on the side which had been left uncovered. These experiments on animals have been supplemented by others on the human body. After various operations which left raw surfaces in the abdominal cavity, I have filled the belly with either sterilized olive-oil or normal salt solution, and in several cases which required subsequent operation it was found that these procedures had been perfectly useless, and the ad-

hesions were worse at the second operation than at the first. I then gave up the idea of placing foreign materials in the cavity, and concluded to try the effect of massage. This has proven very satisfactory so far, and I hope to be able to verify the results of my work in this line by seeing the interior of some of the abdomens upon which I have worked.

In order to be effective, the massage must be begun early, and continued for at least three months; this not only prevents adhesions, but also improves the circulation in the parts, and causes the absorption of exudates, which almost invariably follow the mutilating handling of the pelvic contents. To get the best effect from our massage, it is necessary to keep in mind the anatomy of the parts upon which we are working, and also to remember the blood-vessels which were ligated during the course of the operation, because this enables us to restore the disturbed circulation more accurately than if we are ignorant of the conditions which were present. Massage of the pelvic organs is very difficult work, and for that reason has not been very graciously received; it also takes up considerable time, and therefore the gynecologist, especially if he be a busy man, resorts to other means which do not occupy so much time, but which can not possibly produce the beneficial results which may be obtained by proper massage.

When we consider the number of operations which are performed on the ovaries and tubes, and are not followed by any amelioration of pain, it behooves us to find the cause, because it is unjust to subject any woman to any operation unless we can offer some legitimate hope of success. In every case in which I have opened the abdomen to relieve post-operative pain, I have found that it was caused by adhesions, which, in

many cases, could have been prevented by early post-operative massage.

PLAGUE CASES 58, 59, 60, 61.*

Chin Guie, age 32, died at the Oriental Dispensary, July 13, 1902, 10:30 A. M. This case was not seen clinically by this office until about five minutes before death, but he was sick in Chinatown four or five days. Necropsy began at 12:45 P. M. The body is that of a well-nourished, well-developed, muscular Chinaman, weighing, approximately, 160 pounds, and being about 5 feet 9 inches in height. There is no evidence of external violence. The post-mortem rigidity is very decided, and the lividity is generally well marked, having increased rapidly after the removal of his clothing. The masseter muscles and muscles of the calves are firmly contracted. The skin nowhere shows any eruption. The genito-perineal region is free from lesions. The ocular and buccal mucosæ, though somewhat injected, are not hemorrhagic or bile-stained. The tongue is dry, and has a brownish coating. The ears and nose appear normal, as do all the joints. In the left inguino-femoral region is a rather firm, uniform swelling, the overlying skin of which is tense, and shows along the border of the swelling a light yellow color, probably due to the underlying tension. This mass is covered by a black ointment. There are no wounds on the left leg through which infection might have taken place. Incision into this mass shows a typical pest bubo. The periglandular edema is hemorrhagico-gelatinous, well marked and

quite extensive. The glands themselves show numerous cortical hemorrhages, and are entirely necrosed. The arteries in this region show no intimal lesions, but the intimæ of the accompanying veins show numerous small hemorrhages. The skeletal muscles of the thorax and of the abdomen are dark red and rather dry. The omentum is clear, and covers the intestines, which show no lesions, subperitoneally. The appendix vermiformis and the caput coli appear normal. The heart is firmly contracted, and on the surface of the left ventricle, near the auriculo-ventricular border, are many small sub-pericardial hemorrhages. The heart vessels are very much distended, but are not sclerotic. On the surface of the right ventricle is a soldier's plaque, about three cm. in length. The cardiac valves and the endocardium, as well as the pericardium, seem normal. The myocardium, particularly of the left ventricle, shows a diffuse cloudiness, as though it had been steamed. The lungs are free in their cavities, except that at the left apex there is an old pleurisy, corresponding to which are three or four small caseous tubercles. The posterior borders of both lungs are congested, but at no point is there any consolidation. The large vessels of the thorax show no hemorrhages into their intimæ. The kidneys show an acute nephritis, most marked in the left. The suprarenal capsules seem normal. The ureters seem normal, and so does the bladder, which is not distended with urine. There are no noticeable lesions of the pancreas, and the spleen, though somewhat enlarged, does not, upon section, show any marked bulging of the pulp, although the trabeculae and the Malphigian bodies are somewhat obscured. The capsule shows no lesions of any kind, and the vessels of the

*The case of May 26, published as case 58, should be omitted, as the animal inoculation, which had not been completed at that time, failed to verify the probable diagnosis.

organs seem normal. The mesenteric glands appear normal, as does the gastro-intestinal tract, with the exception of small mucosal hemorrhages in the stomach. The biliary ducts are patent; the gall-bladder, normal. The liver is somewhat enlarged, and, with the exception of three or four areas of necrosis on the surface of the right lobe and a diffuse cloudiness, shows nothing abnormal. The left lumbar and iliac glands are very much enlarged and hemorrhagic, being surrounded by a diffuse edema, which extends along the spine to the diaphragm, and to the loose tissues about the sigmoid flexure. The intima of the abdominal aorta seems normal, but the intima of the inferior vena cava shows numerous smaller hemorrhages. Microscopy.—Smears from the enlarged inguino-femoral glands and from the spleen show numerous organisms, which morphologically and tincorially are pest-like, both as to bipolar and doughnut forms, the latter form being numerous in the glands. Stains Used.—Four per cent carbol-thionin (B. A. G.), Grams, Weigert, and Cladius. The probable cause of death is pestemia. Agar cultures made from the heart's blood, the spleen, and the left inguino-femoral glands. Animals inoculated with gland and splenic substance.

Case 59.—Leong Ngan, age 27, seen clinically at 10 A. M., and died at 3 P. M., July 18, 1902, at the Oriental Dispensary. Previous residence, 632½ Jackson Street. Body that of a well-developed, well-nourished Chinaman, weighing, approximately, 140 pounds, and being about 5 feet 7 inches in height. There are no external signs indicative of the probable cause of death, save in the left inguino-femoral region, which shows an oblong light-yellow area of the overlying skin. The

axillary and inguino-femoral glands are palpably, but not visibly, enlarged. Section in the axillary and inguino-femoral regions shows hemorrhagic, necrosed glands, presenting the macroscopic pest lesions, together with the periglandular edema. There is an acute hyperplastic splenitis. The liver shows a few necrotic areas on the surface of the large lobe, and some of the bile passages show localized dilations, which are caused by the distomum sinense. The suprarenal capsules, the bladder, the ureters, and the pancreas seem unaffected. The kidneys show an acute parenchymatous nephritis. The lungs are, posteriorly, deeply congested, but there is nowhere any consolidation. There is on the right side an extensive acute plastic pleurisy, and at the apex of the left lung an old pleurisy. The right heart is dilated, and presents subepicardial hemorrhages and myocarditis. The large thoracic and abdominal vessels seem normal, as do the intestines, with the exception of a chronic enteritis. The left iliac glands are enlarged and extensively hemorrhagic. The urethra and the testicles show no evidence of disease. The trachea, the larynx, the pharynx, esophagus, and stomach show nothing abnormal. Microscopy.—The spleen, the heart's blood, and the enlarged inguino-femoral and iliac glands, show numerous pest-like bacilli. Probable cause of death, pestemia.

Case 60.—Yee Woon Chun, age 48, died 6:30 P. M., July 19, at 735 Jackson Street. This case was not seen clinically. The body is that of a well-developed, well-nourished, muscular Chinaman, weighing about 175 pounds, and measuring about 5 feet 8 inches in height. The axillary and inguino-femoral glands are palpable, and seem small. Section, however, shows the typical pest lesions. The spleen is very

much enlarged, and shows numerous subcapsular nodules. The pulp, upon section, flows, and the Malphigian bodies and trabeculae can not be distinguished. The liver, subcapsularly, shows several yellowish areas of necrosis, and the bile passages, though not dilated nor thickened, contain many distoma sinense. It is decidedly of the hob-nail type. The suprarenal capsules, the bladder, the ureters, the pancreas, the intestines, the stomach, the upper air passages, the esophagus, the pharynx, the urethra, and testicles seem normal. The kidneys show a chronic nephritis. Microscopy.—The enlarged lymph glands, the spleen, and heart's blood contain many pest-like bacilli. Probable cause of death, pestemia.

Case 61.—Chew Hork, age 45. This case was seen clinically at 5 P. M., July 20, at the Oriental Dispensary. Some of his bloody sputum was obtained, and showed, tinctorially and morphologically, a very rich, pure culture of pest-like bacilli. This man lived at 737 Jackson Street. The body is that of a well-developed, well-nourished, and very muscular Chinaman, weighing

about 200 pounds. There are no external lesions to indicate the cause of death. The axillary and inguino-femoral glands show beginning cortical hemorrhages. Both lungs are very edematous, and show numerous islands of broncho-pneumonia. In the middle lobe of the right lung there is an area about 4x5x2 cm., which is consolidated, and grayish in appearance, and appears to be in a more advanced stage than the islands above referred to. The lungs nowhere show any lesions like tubercles. The spleen is enlarged to about two and one-half times its normal size is rich in blood, and very diffuent. The kidneys show chronic nephritis, and the right kidney shows a large cortical retention cyst. The mesenteric and other internal glands are not enlarged, and the other viscera show no macroscopic evidence of disease, save the heart, which is enlarged, and presents a typical picture of acute myocarditis. Microscopy.—The consolidated areas of the lung and the heart's blood show an apparently pure culture of typical pest-like bacilli. Probable cause of death, pneumonic plague.

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THE PLAGUE AGAIN ACTIVE.

The occurrence of six cases of plague within as many weeks, together with the fact that all probably became infected in the Chinese quarter, again invites the attention of the health authorities of our state and country to the possibility of a verification of the histories of all prodromal periods in the existence of the disease. The autopsies of the last four cases are reported in this issue; three are of the bubonic and one of the pneumonic variety.

The continued occurrence of cases since March, 1900, its reappearance in this city and at various points in the state, the frequent findings of several cases in one locality, and among persons of the same family, and following the same occupation, emphasize the fact that there are several foci of infection. It should be remembered that cases have died in San Francisco that undoubtedly contracted the disease in Berkeley, Davisville, Sacramento, Stockton, Bouldin Island, Santa Barbara, and in all probability Fresno and Bakersfield. It is also well to repeat here that it is the firm belief of those intimately connected with the work that these cases came accidentally to post mortem, having escaped the vigilance of the Chinese and the State Board of Health. The deaths that have taken place since July 1, 1901, demonstrate how inefficient were the measures of disinfection insisted upon by the state authorities, over the success of which Governor Gage so exultingly congratulated himself and his hirelings, and over the failure of which he will be

so anxious to further condemn the Marine Hospital and Public Health Service, which was forced to supervise and condone the work under conditions, stipulations, and restrictions against which all protest was in vain.

The helplessness of this state of affairs will readily appeal to the various health organizations of our land. The Marine Hospital and Public Health Service, under the merciless dictation of politics and under the selfish sway of commercial interests and the public press, by yielding to efforts to suppress the facts, and by being forced to follow the injunctions of Gage's Newspaper Commission as to the method and manner of disinfection, has virtually admitted its failure to cope with the situation, or at least its inability to overcome the unscrupulous policy imposed by California's politicians. The Surgeon-General of this service stands to-day totally unable to do anything directly under the law for the relief of so lamentable and unpleasant a predicament. The State Board of Health of California, intentionally and servily, ruled by an untruthful and unscrupulous Governor, aims solely to conceal the facts. The local Board of Health, harassed on all sides by newspapers and public opinion, and gagged by the Mayor, the law, and an inability to secure funds for necessary expenses, presents a spectacle unenviable and unhappy. As late as July 26, by the dismissal of the quo warranto proceedings, it is left in possession of the office, bravely fighting for the truth, and applauded only by a conscientious discharge of duty and the medical profession. It has been

deprived of its ability to make known the deaths as they occur; and, whether wisely or not, shorn of all power to relieve the situation, standing to all purposes helpless, it assumes a responsibility that should be borne by those who are playing with death with a recklessness that simply appals.

The outlook for protection, therefore, does not commend itself to the country at large. With the city and state infected at various points, it is plain that any measures instituted directly against San Francisco are useless and unfair. Each focus of infection needs thorough treatment. Any local measures other than disinfection of houses or their destruction and the quarantine of suspects, which can rarely be done, because the cases only appear in places other than their habitations when in extremis, would not avail the country at large. Hence the means that can be effective must be far reaching and radical in nature. From our state authorities nothing can be expected. Only the power that removed the state quarantine of 1900 can operate with any degree of efficiency. With the President of the United States **directly**, and the people indirectly, through the Surgeon-General of the Marine Hospital and Public Health Service and the various health boards of the states, rests the satisfactory solution of this problem. The law of 1890 would control the situation completely, and bring our Chief Executive to a full realization of his unfitness for the office he holds and of his duty to the other states of this great Union. Whether President Roosevelt will with his characteristic wisdom and honesty yield to the truth and seriousness of the conditions is to be seen. It is to be earnestly hoped that the facts will convince him of the necessity of action; but, if there should be any hesitation on his part, it

has recently been put into the hands of the people to so urge the matter upon him that inaction would be out of the question. The regulations, passed by the last Congress, and which became a law on July 1, 1902, authorize the Surgeon-General of the Marine Hospital and Public Health Service to call together the boards of health of the country for the consideration of such conditions. It reads thus:—

Sec. 7. That when, in the opinion of the Surgeon-General of the Public Health and Marine Hospital Service of the United States, the interests of the public health would be promoted by a conference of said service with state or territorial boards of health, quarantine authorities, or state health officers, the District of Columbia included, he may invite as many of said health and quarantine authorities as he deems necessary or proper to send delegates, not more than one from each state or territory and District of Columbia, to said conference: Provided, That an annual conference of the health authorities of all the states and territories and the District of Columbia shall be called, each of said states, territories, and the District of Columbia to be entitled to one delegate: And provided further, That it shall be the duty of the said Surgeon-General to call a conference upon the application of not less than five state or territorial boards of health, quarantine authorities, or state health officers, each of said states and territories joining in such request to be represented by one delegate.

Such a movement would be in keeping with certain resolutions that have been passed by various health associations condemning the authorities in California for their ignominious conduct. It would test the law and the quality of these resolutions. Such concert of action is absolutely necessary to bring our authorities to their senses. A quarantine of the state is not desired, nor is it desirable. It would work much harm. The policy outlined by those in power is inevitably leading to it. No other means will soon be left. To-day our public officers stand discredited before the world for their false statements and efforts to conceal a demonstrated fact. They must yield, and that quickly,

to the truth and to a rational view of the matter, or some bright morning they will find themselves cut off from the rest of the world. It is not too late to look at the case seriously and sensibly; they will not be less thought of, and measures must be undertaken promptly to protect our neighbors. It is quite time that the Governor should confess the folly and absurdity of his way. It is in truth criminal for him to further expose our people to the dangers of a serious epidemic, which must come if the present course is adhered to. No page in the history of epidemics is more disgraceful than that which Henry T. Gage has caused to be written; authority has never been so grossly used, and few despots have so carelessly and defiantly invited death and disease.

THE LANE MEDICAL LECTURES.

The Lane Medical Lectures for the year 1902 will be delivered by Mr. Charles B. Ball, M. C. L., M. R. C. S. I., etc., Regius Professor of Surgery in the University of Dublin, an eminent authority on the surgery of the rectum. The course will begin on Monday, the first of September, and continue, two lectures daily, during the week. The profession of the state are invited to partake of the "rare opportunity and benefits of Mr. Ball's great progress and skill." The program, as outlined below, insures a practical and complete course on a specialty to which little or only general attention is given on the coast. The subjects of the several lectures are as follows:—

September 1, Monday, 11 A. M., Introductory, "Surgical Anatomy;" 8 P. M., "Methods of Examination; Sepsis; Abscess and Fistula."

September 2, Tuesday, 11 A. M., "Tuberculosis; Syphilis; Dysentery; Ulceration, and Painful Fissure;" 8 P. M., "Non-Malignant Stricture; Prolapse."

September 3, Wednesday, 11 A. M., "Piles;" 8 P. M., "Benign Tumors."

September 4, Thursday, 11 A. M., "Malignant Disease: Carcinoma; Sarcoma; Pathology and Symptoms;" 8 P. M., "Surgical Treatment of Cancer of the Rectum."

September 5, Friday, 11 A. M., "Colotomy: Pruritus Ani; Incontinence of Feces; Injuries;" 8 P. M., "Congenital Malformation."

A BRIEF HISTORY OF THE OCCURRENCE OF PLAGUE IN CALIFORNIA.

The "Evening Bee," of Sacramento, has recently published (July 10, 11, 12) in three chapters an accurate and concise history of the plague as it has occurred in California to the present time. This review contains much that is new, and very emphatically places the blame for the inefficiency of the measures to prevent its spread where it belongs. It is well worth preservation, and throws much light on the intrigues of the health and political authorities in control.

NOTICE TO SUBSCRIBERS.

Those of our subscribers who do not receive their copies regularly will confer a favor upon us if they will notify the office of publication. We endeavor to be very careful with our mailing list, but for some unaccountable reason many copies go astray. It is always a pleasure to correct this error, and it is only possible to do this when our supply is quite full; therefore we again appeal to you to notify us at once, and especially of any change of address on the part of the subscriber.

NOTES

CONCEALMENT OF PLAGUE CASES.

A Hongkong correspondent reports that during the early part of May four or five cases of bubonic plague were reported or discovered daily, and that, while every effort

was made to discover the early cases, the co-operation of the Chinese was not obtained. Some of the cases apparently were discovered only when the bodies were dumped out on the streets by unknown parties. This throws a little light on San Francisco possibilities. If in Hongkong, with every effort being made to reveal—not to conceal—plague, including regular house-to-house visitation, such difficulties are encountered, how much better a chance for its concealment must exist in San Francisco, where not only the Chinese but the civil authorities are actively interested in the suppression of all facts?—*Jour. A. M. A.*

GOVERNOR GAGE AND THE BUBONIC PLAGUE FUND.

In a recent number of the Los Angeles "Times" was the following:—

"Ever since the appropriation of the \$100,000 'bubonic plague' fund, over a year ago, the taxpayers of the state have wondered who got it. Reports have been received from time to time that the money was spent by the administration in one manner and another for the good of the 'push,' and examples were cited of numerous appointees of the machine who were drawing down good salaries for alleged services.

"One of these appointees was a man named Bryant, of San Jose, who received an appointment as 'inspector' from the State Board of Health, and who came to Los Angeles without credentials to 'investigate' the conduct of the local Health Department. Bryant received \$200 per month and expenses for doing practically nothing, and his appointment is charged to an effort on the part of the machine to obtain the support of several organizations of old soldiers, of which Bryant was a member. Bryant left Los Angeles hurriedly after the 'job' was shown up in the 'Times.'

"But the 'graft' strikes closer home.

"Walter Moore, the disgraced fire chief of this city, has been named as the chief beneficiary of the 'bubonic plague' fund, and during his sojourn in San Francisco he has held various positions under the present administration, as 'water expert' and in other capacities, for all of which he is said to have received goodly portions of the state's money.

"Ben Fehneman, of local notoriety, also has profited handsomely in his allegiance to Gage, who appointed him, and there are many other members of the 'push' who have gained comfortable allowances through the laxity with which the purse strings of the state have been pulled.

"And while Gage was spending the state's money in this tom fool way, his right hand bower, Daniel Kevane, was holding up in the Board of Examiners the bill of Dr. Ryfkogel—not because the work he was ordered to do was not faithfully performed, but simply because in his report he told the truth and stated as a fact the fact that bubonic plague existed in California.

"The way Governor Gage worked that bubonic plague fund was a shame and a disgrace."

HAS MAYOR SCHMITZ MADE A BARGAIN?

The latest political gossip goes to the effect that Mayor Schmitz is no longer a candidate for the Republican nomination for governor. He dreads the covert hostility of the "Examiner" should he antagonize Governor Gage, and through his manager, A. Ruef, has made a compromise with the "regular organization" and has withdrawn from the fight. The story goes that the price of this withdrawal is to be a decision in favor of his appointees to the Board of Health. Then the Republican judges rendering the decision are to be re-nominated by the Primary League, which will unquestionably control the city convention.

The act of Judge Cook in assigning the Board of Health case to himself and Judge Troutt gives color to this talk, and the protest of Attorneys Garrett McEnerney and Gavin McNab against this assignment, and their withdrawal from the case when it was finally made, on the ground that they could no longer hope to get a decision for their clients, cause the gossips to smile knowingly, and to say that these lawyers knew more than appears on the records of the court.

It is hoped that the story is not true. If it is true, the facts will all become known. The mayor has everything to lose by being connected with such a trade. We can understand that Mr. Ruef might consider that a year and a half of unchecked control of the patronage of all the city departments—and that is what a decision in the Board of Health case would give him—would be worth more than a chance to fight for the governorship and its patronage. But the mayor has ambitions for himself beyond serving Mr. Ruef's machine, and these ambitions would be as fruitless as Dr. O'Donnell's have been if he should engage in any such dickering as the gossips are charging him with.

SOCIETY PROCEEDINGS

SAN FRANCISCO COUNTY MEDICAL SOCIETY.

Regular Meeting, May 13, 1902.

The president, Dr. J. C. Spencer, in the chair.

ENDOCARDITIS IN CHILDREN.

Dr. Sanford Blum read a paper with above title.

Dr. Wm. Fitch Cheney: A year ago, at the meeting of the state society, I presented a paper on the manifestations of rheumatism in children, in which I called attention to the fact that valvular lesions had been found more frequently in childhood than in later life, as there is greater susceptibility in children to endocarditis. This is largely due to

the fact that rheumatism goes untreated, because the primary manifestations are not recognized. If they are recognized and treated, the valvular lesions are not so frequent. The principal treatment is rest, to put the child absolutely at rest, and then the endocarditis is not so frequent; but this is difficult to do, for the manifestations of articular rheumatism are so different in children than in adults. There is a stiffness and tenderness, but no redness and swelling, and so it is frequently overlooked, and later the heart shows a valvular lesion. Dr. Blum also spoke of the relation of chorea to valvular lesions; there is no question of this, but there is a great question of the relation of rheumatism to chorea. The clinical side of this subject is the most important, and not the pathological. How to prevent it is the question we want to give most attention.

Dr. H. D'Arcy Power: I should be very sorry to see a paper of this interest pass without discussion. The pathological side has been well summarized, but there is a clinical and a therapeutic side to diseases of the heart in children that is important to the general practitioner. The one peculiar phase of heart disease in children is the tendency to recurrence, far more than in later life, for if you have an inflammatory heart disease in children the tendency to recur at short intervals is greater than in older patients, and the therapeutic indications should be carefully watched for. Dr. Mitchell Bruce many years ago dwelt on this aspect of diseases of the heart, and drew attention to the fact that in many cases the unfortunate termination can be prevented, if the underlying rheumatic condition be looked for and treated at an early date. In most cases the heart failure is not due to the primary attack but to the recurrence of the inflammatory rheumatism in one joint or another, and if these cases were more carefully watched for the indications of the rheumatic diathesis, and promptly treated for tonsillitis, for instance—if these were looked for in every instance and not allowed to run, it would often be possible to prevent secondary involvement of the valves. Reference was made in Dr. Blum's paper to the rarity of endocarditis in very young children. I had last year an interesting case in a child under two years of age, and, although the rheumatic symptoms appeared later, the first indications were in the heart. It started with a pericarditis, and two weeks later had rheumatic trouble in both knees and one ankle, and still later endocardial murmur. My object in speaking is to emphasize the importance of the early indications of rheumatism, which should be treated at the time, if endocardial lesions are to be avoided.

Dr. S. Blum: In answer to the comments relative to treatment of endocarditis in childhood, I desire to say that this paper, as its title signifies, is not intended to deal with the subject of treatment. In response to Dr. Cheney's remarks, I will say that it was my intention to direct attention to the association of chorea and rheumatism to endocarditis

and to note their probable relationship to each other.

THE TREATMENT OF PNEUMONIA IN CHILDREN.

Dr. Wm. Fitch Cheney presented a paper outlining the treatment of the above condition in children.

Dr. E. G. Frisbie: It does not seem to me that the paper calls for much discussion, because the writer covered the subject completely. I was surprised to hear him state that he found lobar pneumonia so frequent, because it has not been my experience; perhaps I have overlooked it, although I have given a careful physical examination to infants when it is difficult to arrive at the diagnosis of the trouble. I find the broncho-pneumonia vastly more frequent than the lobar. I have hesitated always in giving opiates. The doctor spoke of Dover's powder in young children. I am always chary in the use of opiates in pneumonary affections, but if he does so well with it, I shall give it a trial. There is a great restlessness, and it may give relief and great comfort to the mother to give the patient relief; but it seems to me the drying up of the bronchial secretions adds somewhat to the gravity of the situation, and in a few instances, where I administered an opiate, the temperature rather raised than declined, and that is the only point in which I would differ with the doctor.

Dr. M. Strunsky: I was very much interested in Dr. Cheney's paper. It was an excellent synopsis of the diagnosis of infantile pneumonia, especially instructive to the general practitioner. In speaking of the importance of accelerated breathing, the doctor says: "The number of respirations of an infant of six months is about 30. If the breathing becomes 40 to 50 it shows that the lungs are involved. I think Dr. Cheney has overlooked the fact that fever in itself increases respiration. An infant during a high fever may have 40 to 50 respirations per minute, and still not have pneumonia. I think the frequency of breathing is not as important as its character. The dilation of the alae nasi is very suggestive. It means an interference with the air capacity of the lungs. The last sign the doctor forgot to mention.

Dr. Wm. Himmelsbach: I would like to say that I had occasion to try the remedies Dr. Cheney spoke of to-night, and would say that Dover's powder seems to be the only thing to relieve the child's cough. I had an infant ten months of age with lobar pneumonia. I read up everything on the subject, and Dr. Frisbie will find that Dover's powder is recommended by Holt and others. Dr. Cheney mentioned collapse. This occurred, and I don't know of anything to startle you more. The cheeks fell in, and the skin became clammy; the respiration almost ceased. The patient was put in a mustard bath and atropia given by mouth, to stimulate respiration. The only mistake I made was that I gave $\frac{1}{400}$ instead of $\frac{1}{200}$ of a grain, and the eyes brightened, cheeks flushed, and the

mother thought the patient was getting well. I also used strychnin $\frac{1}{450}$ gr. every six hours. My experience endorses everything Dr. Cheney said, and this patient and others recovered.

Dr. J. M. Moss: I would like to ask Dr. Cheney a question in regard to a point raised by Dr. Strunsky. In lobar pneumonia in the adult we pay little attention to the rapidity of the breathing per se. As Dr. Strunsky well said, fever will always increase the rapidity of respiration. In adults we note the ratio of respiration to pulse, and I would like to know whether the change of ratio from 1:2 to 1:4 takes place in infants as it does in adults.

Dr. Wm. Fitch Cheney: First, in regard to the relative frequency between broncho-pneumonia and lobar pneumonia. There is no question that broncho-pneumonia is much more frequent. I simply say that lobar pneumonia is in itself a common disease. When a student, I learned from the text-books that lobar was the pneumonia of adults, and broncho of children; and that lobar practically did not occur in infants; but it is a common disease then. The advantages of Dover's powder are three: It quiets the cough, it promotes secretion, and it is a diaphoretic, and so reduces temperature. The doses, however, must be in proportion to the age of the child. For a child of six months of age, $\frac{1}{2}$ grain of Dover's powder, to a large child $\frac{3}{4}$ grain, and repeat once in four and six hours. I have seen sometimes large doses given—and with bad results. With regard to the frequency of breathing, I said in the paper, and still maintain, that there is a decided increase in the rate of breathing in disease of the lung. I have seen infants six months old with digestive trouble with 104 degrees temperature and breathing 36, but not 50; and this is the point that Dr. Strunsky said he was not in the habit of paying attention to. If he will, he will find more cases of lobar pneumonia. Dilatation of the alae nasi occurs with every disturbing condition of the respiratory passages, and does not always mean disease of the lungs.

BOOK REVIEWS.

NEW BOOKS BY VANDERBILT PROFESSORS.

"Ophthalmic Myology," a systematic treatise on the ocular muscles. By G. C. Savage, M. D., professor of ophthalmology in the Medical Department of Vanderbilt University, author of "New Truths in Ophthalmology," ex-president of the Nashville Academy of Medicine, ex-president of the Tennessee State Medical Society. Sixty-one illustrative cuts and six plates.

The writer of the book with the above title has given to the profession, and particularly to his specialist, a contribution of much value. From beginning to end the work presents the appearance of a finished whole. The first chapter is devoted to the basic principles, scientifically worked out and presented in a clear and concise manner. These principles being accepted and mas-

tered, the teaching of subsequent chapters can be grasped and applied. The author has challenged every theory and proved every so-called fact, with the result that, while he differs from some writers of note who have preceded him, whatever has been given in the pages of his book has been carefully tested and thoroughly proved. The first chapter possibly evidences more of the author's originality than the others, as in this he outlines the principles on which the rest of the work is based, but all show the professional skill of the writer. The cuts and plates, the paper, printing, and binding are in good accord with the professional excellence of the volume.

"A Practical Treatise on Smallpox," illustrated by colored photographs from life. By George Henry Fox, A. M., M. D., consulting dermatologist to the health department of New York City, with the collaboration of E. D. Hubbard, M. D., S. Pollitzer, M. D., and J. H. Huddleston, M. D. Part I and Part II, Philadelphia and London, J. B. Lippincott Company, 1902. Since the anti-vaccinationist is abroad in the land and the anti-vaccination fanatics are increasing in number, while the diminishing proportion of the population is being systematically and thoroughly vaccinated, and with the consequent possibility of an increase in the number of smallpox cases, it behooves the members of the profession to thoroughly acquaint themselves with the appearance and manifestation of this serious disease. In the work the title of which appears above, the physician has the best representation, outside of a case of the disease itself, that has yet appeared. It is nothing more or less than a series of colored plates from photographs taken from life, presenting illustrations of the smallpox eruption in each of its successive stages. There are eight plates in each part, with description of each, presenting not only the different stages, but the different varieties as well. The text is practical and clear, with some cases quoted, and a careful differentiation is given. Treatment is given for each stage of the disease, for incubation to desiccation, including the period of convalescence and prophylaxis. Vaccination is also treated of, the source of the vaccin, methods for vaccination, care after vaccination, complications, etc. With all this, it is a very excellent addition to the library of any practitioner.

"Clinical Lectures on Surgical Subjects." Delivered in University College Hospital by Christopher Heath, past president of the Royal College of Surgeons of England, emeritus professor of clinical surgery in University College, London, and consulting surgeon to University College Hospital. Second series, London, J. and A. Churchill, 7 Great Marlborough Street, 1902.

The author's preface is as follows: "In this volume I have collected a second series of the clinical lectures delivered by me in University College Hospital during the last few years, and have included two of the Lane lectures given by me in the Cooper

Medical College, San Francisco, in 1897. I have also added the Hunterian oration delivered at the Royal College of Surgeons in the same year." This little volume contains 343 pages, made up of 17 lectures delivered at various times from 1893 to 1900, inclusive. The two Lane lectures were reprinted from the "Occidental Medical Times," San Francisco, California. All these lectures are of the excellence which would be expected from the pen of so distinguished a surgeon. One of the most interesting chapters in the work, while not on a special surgical subject, is the sixteenth, entitled "A Century of Surgery." Some of the subjects are: "On a Case of Gangrene of the Leg;" "On Fractures of the Lower Limb;" "On Tetanus;" "On the Distal Ligature in the Treatment of Aneurism, and the two Lane Lectures;" "On Diseases of the Joint;" and "On Aneurism;" besides others of equal interest.

"The International Text-Book of Surgery," by American and British authors. Edited by J. Collins Warren, M. D., LL. D., Professor of Surgery in Harvard Medical School, Surgeon to the Massachusetts General Hospital, and A. Pearce Gould, M. S., F. R. C. S., Surgeon to Middlesex Hospital; Lecturer on Practical Surgery and Teacher of Operative Surgery, Middlesex Hospital Medical School; Member of the Court of Examiners of the Royal College of Surgeons, England. Volume I, "General and Operative Surgery." With 458 illustrations in the text and 9 full-page plates in colors. Philadelphia and London, W. B. Saunders & Co., 1900. Price, cloth, \$5.00 per volume, net; sheep or half-morocco, \$6.00 per volume, net. That in the multiplicity of the books on surgery we notice an improvement is markedly evident by the one before us—by American and British authors, edited by Prof. J. Collins Warren, of Harvard, and A. Pearce Gould, M. S., F. R. C. S., Surgeon of the Middlesex Hospital, etc. In this work, which is of two volumes, volume one being devoted chiefly to general surgery, and volume two to the various branches of special surgery, we have the best of the surgery of the world, as each chapter is written by a man of wide experience and established reputation in his particular department. This arrangement has been deemed the best, for no one man can write authoritatively on the vast range of subjects embraced in a modern text-book of surgery. In volume I there are 947 pages, with 458 illustrations in the text and 9 full-page plates in colors. These illustrations are clear and excellent, and for the most part new. One of the editors, J. Collins Warren, M. D., of Boston, has contributed five chapters to volume I, chapter 12 being on operative and plastic surgery, which is most admirably illustrated and clearly written. The introductory chapter is on surgical bacteriology, by Harold C. Ernst, M. D., of Boston, Professor of Bacteriology, Harvard Medical School. This chapter deals briefly with the bacilli and cocci and the technic to be employed in surgical bacteriological work. It is quite certain that these twenty-five pages are as full of substance as it is possible to have them. The chapter on the technic of

aseptic surgery was prepared by Charles McBurney, M. D., of New York, assisted by Howard D. Collins, M. D., and Frank Oastler, M. D. These pages are of importance to the surgeon who is carefully and thoroughly trained in asepsis and the occasional operator, who requires every aid in the preparation of the field, himself, his assistants, and his operative material. All the essentials for thorough asepsis are considered in detail, and yet without having to read through a great mass of useless verbiage. This chapter is of importance, as it contains the essence of the successful surgery of to-day. The subject of tumors was written upon by J. Bland Sutton, F. R. C. S., London. Only forty pages are devoted to this topic, necessitating the briefest possible treatment of this vast subject. The cuts are numerous and good. "Diseases of the Bone" was written by William Watson Cheyne, F. R. S., F. R. C. S., London. Volumes are written upon this subject, and it is only by totally discarding useless material that the author of this chapter could accomplish so much. Inflammation, Tuberculosis, and Syphilis of Bone are the principal headings of this chapter. The subject of fractures is treated of by Louis S. Pilcher, M. D., and James P. Warbasse, M. D., both of New York. Almost one hundred pages are given here on fractures, special fractures, splints, and the management of fractures. The illustrations in this chapter are particularly clear, and a few excellent skiagraphs are presented, which elucidate the text. Other contributors are: Maurice H. Richardson, M. D., of Boston; the late John B. Hamilton, M. D., of Chicago; Rushton Parker, M. B., B. S., F. R. C. S., of Liverpool; George Ryerson Fowler, M. D., of New York, and others of equal prominence in the world of surgery, aggregating twenty-seven contributors to volume I. The paper, the type, the binding, in fact, the product of the book-maker's art, is thoroughly in keeping with the excellence of the material presented in the pages of this notable work.

"International Clinics," a quarterly of clinical lectures and especially prepared articles on medicine, neurology, surgery, therapeutics, obstetrics, pediatrics, pathology, dermatology, diseases of the eye, ear, nose, and throat, and other topics of interest to students and practitioners, by leading members of the medical profession throughout the world. Edited by Henry W. Cattell, A. M., M. D., Philadelphia, U. S. A., with the collaboration of John B. Murphy, M. D., of Chicago; Alexander B. Blackader, M. D., of Montreal; H. C. Wood, M. D., of Philadelphia; T. M. Rotch, M. D., of Boston; E. Landolt, M. D., of Paris; Thomas G. Morton, M. D., of Philadelphia; Charles H. Reed, M. D., of Philadelphia; J. W. Ballantyne, M. D., of Edinburgh; and John Harold, M. D., of London, with regular correspondents in Montreal, London, Paris, Leipsic, and Vienna. Volume 4, eleventh series, 1902. Philadelphia, J. B. Lippincott Company, 1902. This volume, as usual, has many able contributors, among whom may be mentioned J. Mitchell Bruce, Sir Dyce Duckworth, A. Jacobi, G. Frank Lydston, John H. Musser, Nicholas Senn, H. C. Wood, Jr., and

many others. In surgery Prof. Thomas Jones presents an article on "Splenectomy for Malarial Cachexia," and Drs. Deaver and Senn give reports of their extensive clinics. In neurology Dr. G. L. Walton has given a paper on "Types of Hemiplegia," and Prof. Arnold Pick is the author of one on "Total Aphasia; Its Diagnostic Significance for the Determination of Cerebral Affections." Under therapeutics we have an admirable article on the "Dangers of a Too Strong Solution of Adrenalin Chlorid Used as a Nasal Spray," by Charles H. Burnett. L. Brocq handles the question of the treatment of syphilis, in which he favors the use of small, repeated doses of solutions of mercurial salts. Climatology is clearly presented by Norman Bridge and Thomas D. Coleman. These and many more excellent and satisfactory papers are presented in clear and readable style. One other feature of note is a special article on "Methods of Keeping Case Records in Private Practice," by men with extensive practices, requiring careful note taking, and whose experience with various methods enables them to present what they deem the most practical. The work as a whole is good, size and binding being similar to the rest of the series.

"Warwick of the Knobs," a story of Stringtown County, Kentucky, by John Uri Lloyd, author of "Stringtown on the Pike," "Etidorhpa," "The Right Side of the Car," etc., with photographic illustrations of Knob County. New York, Dodd, Mead Co., 1901. In this story we have portrayed the peculiar history of some of the old original "hard-shell" Baptists. The leader of this sect in this region was Warwick, a man strong in frame and strong in the faith which was in him. The story deals in beautiful verbal portraiture with the home life of this man, his two sons, and one lovely daughter. The time is that of the beginning of the great civil struggle, and this enables the author to present the views held by the loyal southerner. One son is disposed of quite tragically, the daughter is deceived and abandoned far from her home, and the second son is spurned by his father for not taking the life of his sister's betrayer. This short synopsis can not intimate the graphic force and energy of this southern tale. It will well repay perusal.

HOSPITAL REPORTS.

Gynecological Clinic, Cooper Medical College, Geo. B. Somers, M. D., in charge.

Reported by Minora E. Kibbe, M. D.

SURGICAL PROCEDURE FOR RELIEF OF OVARIAN TENSION-PAIN.

H. Howitt ("Dominion Medical Monthly," May, 1902) is of the opinion that abnormality of tension arising in the ovary from a perverted condition of the oophoron is the cause of ovarian pain. Ovulation is deranged or arrested, owing to the surface of the ovary becoming dense and unyielding. The organ takes on a rounded shape and becomes tense and heavy, leading to prolapse. Medication

is considered insufficient for relief and castration to be condemned. In the proceeding recommended, the ovary is exposed and a number of cross cuts quickly made through the dense capsule in such a manner as to divide it into small islands not more than a square line in extent. All cysts are opened. Those larger than a grape enucleated, while cavities of the smaller are merely touched with pure carbolic acid. When the capsule is found extremely thick permanent relief is more likely to result when a portion is removed. Two rows of islands are shaved off, exposing a cross of denuded tissue. No normal ovarian tissue is removed. Indications for this operation are: 1. Severe pain not amenable to medical treatment. 2. Examination showing enlarged, rounded, and abnormally sensitive ovaries. 3. History of aggravation of symptoms at menstrual period and by anything that tends to excite.

Howard A. Kelly (Bulletin Johns Hopkins University, April, 1902) offers a new method of treatment of post-operative vesico-vaginal and recto-vaginal fistulae high up in the vagina. It consists in opening the peritoneal cavity widely from side to side so as to free the bladder from its fixation at the vaginal vault and render it thoroughly motile. By this means it becomes possible to displace the entire affected area downward to any extent required. The patient is placed in knee-chest position, the vault is opened in the line of transverse scar, and immediately air rushes in, causing the viscera to drop toward the diaphragm. The opening is now widely extended from side to side, setting the bladder free. The margins of the fistulae are split by a short-bladed, thick knife, sharpened on both edges, set in a handle at an angle of about 45 degrees. When the edges are split and the bladder wall is set free, the bladder wall is sewed up separately by means of a row of fine buried sutures uniting the muscularis alone. The vaginal surface is then united with silkworm gut sutures. In order to get the air out of the peritoneal cavity before closing, it is filled with a saline solution, which escapes when patient is turned in dorsal position. Each angle of the incision is sutured, and an iodoform drain is left in the peritoneum.

Kleinhans ("Monatschr. Geburtsh u. Gyn.," March, 1902) reports a case of hysterectomy for abortion in a woman with a narrowed pelvis, due to osteomalacia. Three previous labors were normal. A short time before delivery of the third there was some swelling of the limbs. Soon after delivery she was taken with pain in loins and limbs and was able to get about only by using chair backs as crutches. After some weeks her condition improved spontaneously. However, there remained some stiffness about the hip joint and atrophy of the thigh muscles. She became pregnant the fourth time and abortion came on at the end of the fourth month. On account of the narrowing of the pelvis, due to the previous osteomalacia, delivery was not possible through the pelvic outlet. A supra-vaginal hysterectomy was made. Patient recovered.